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# MODERN METHODS OF FRACTURE REPAIR IN LARGE AND SMALL ANIMALS*

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My special interest in this subject was aroused when I attended the International Congress of 1949, and heard three foreign veterinary surgeons recounting their great successes in modern fracture repair by pinning or plating, etc.

Even with all the experience of mechanical repairs which has been learned to date, I doubt very much whether any of us would obtain such an excellent percentage of sepsis-free surgical results as we do now if we had not penicillin. That antibiotic has made many of us very bold in the attempt at doing things we never would have dreamed of a few years ago.

## FRACTURES IN SMALL ANIMALS

With the advent of the gypsona plaster-cast method of repair, about 15 years ago, I thought we had found the answer to the fracture problem ; and, indeed, marked success was obtained. It was, however, a method which had its limitations, chief of which, perhaps, was that when one had been able to manipulate the fragments into correct apposition and alignment, they had to be released whilst the plaster slabs were applied : of course, in many cases, displacement recurred, and frequently was not afterwards detected or rectified. It is a common experience, at the termination of a plaster setting, to feel satisfied that the job is perfect ; but too often subsequent radiographs have proved the reverse.

Other disadvantages of plaster casts (of course well known to you) are the way they become wetted, nibbled, cracked or loosened ; in fact, a hindrance rather than a help. In spite of all one's injunctions to the owner to keep the dog muzzled, and in a confined space, etc., these are mainly disobeyed or neglected, with the result that the plastering process has to be repeated—perhaps even more than twice. I have also occasionally had trouble in the past from pressure necrosis, notwithstanding that the slabs have been merely *laid* and not *pressed* on—and very carefully and flatly applied, too. Such incidents have puzzled me, as it has usually been my procedure to postpone the final setting of a fracture, by plaster, for two or three days, in order to allow the swelling to subside. If a plaster cast is applied immediately after the accident, one may expect great swelling to follow, and so press upon the unyielding cast that pressure necrosis is highly likely to develop.

These disadvantages of the plaster method have been especially mentioned in order to emphasise the supremacy of pinning—a method to which not one of the above disadvantages can be attached. I anticipated that somebody would be sure to ask " Why go to the trouble of pinning when a good job can be done within 20 minutes by the older method ? " The answer is, of course, that *if* it can, then it would be foolish to go to such trouble.

Each case must be treated on its merits. A simple fracture with no displacement would most likely be well treated by a plaster cast.

*Kirschner-Ehmer Pinning.*—Think, however, of the cases of fracture with gross over-riding, especially of the femur or humerus. Sometimes the fragments overlap as much as 2 inches ; sometimes they lie at right angles ; and the outstanding difficulty in many of such cases is to manipulate those broken ends together in a straight line, hampered by the mass of muscle tissue (greatly swollen) which covers them. This reduction is immensely facilitated by the Kirschner-Ehmer method of pinning, because force can be applied directly to the bone fragments themselves, that is, where it is most desired. There is no loss of force, as in the case of traction through skin and muscles which—even under anaesthesia—offer a tremendous resistance. When the apparatus finally has been applied and properly adjusted, absolute immobilisation occurs at the fracture site, the bone fragments themselves being *directly* fixed, rather than through the agency of surrounding soft tissues.

Where possible, the pin assemblies are applied only to the bone that is fractured (as in mid-shaft fractures) and in such cases the result is complete articular freedom above and below the fracture ; thus, the limb may be walked upon almost immediately. But, in epiphyseal fractures, it may be necessary to take in two bones.

The circulation is not depressed, either through inactivity or by pressure. Consequently, atrophy is averted. There is direct access to the wound if the fracture is compound. Finally, the animal cannot undo the surgeon's work as, for instance, by tearing off its dressings.

It is a remarkable fact, too, that a pinned fracture causes the animal neither pain nor embarrassment. I received that assurance with a good deal of scepticism in the early days, until I was able by my own observation to confirm it.

The American veterinarians were unhampered by the frustrations and restrictions which beset their English colleagues, and were able to forge ahead whilst *we* were at an enforced standstill. They were astute enough to exploit the publications of the English surgeon Sir Arbuthnot Lane, who, I believe, was a pioneer in the repair of fracture by means of screwed-on plates. Credit, therefore, must be given to Dibell, Ehmer, Schroeder, Stader, Kirschner, Knowles and others in U.S.A., Neilsen in Holland, followed by Knight in Great Britain, for the practical application of modern orthopaedic measures to the treatment of fractures and dislocations in animals, to the end that the veterinarian need not apologise to the human surgeon for his work.

The achievements of these men have been made possible by the application of radiography to fracture treatment in animals, which has made the practitioner conscious of the poor reductions formerly obtained. I took up this branch over 22 years ago, when the X-raying of an animal (particularly of a large one) was regarded as something of a feat.

* Composite paper forming the basis of addresses presented to the South Wales Division, B.V.A., at Cardiff, December 7th, 1951; the Lincolnshire and District Division, B.V.A., at Peterborough, February 15th, 1952, and the Central Veterinary Society (Repair of Large-animal Fractures), April 3rd, 1952, together with report of the discussions which took place at the Cardiff and Peterborough meetings.

What *are* these modern methods of fracture repair? Briefly, they are mainly three, *viz.*, cortical pinning, intramedullary pinning, and plating. Of less importance (though often of great value) are wiring, and coaptation by threaded bolts.

*Cortical pinning* is well exemplified by the Stader and by the Kirschner-Ehmer methods. I, personally, have adopted the latter, and find it excellent in every way.

In describing the procedure, let us—for the sake of brevity—omit all reference to aseptic precautions, regarding these as accepted and understood, and consider, rather, the broad outline of the method.

Two cylindrical stainless-steel pins (of varying selected thicknesses) are to be driven through both cortices of sound bone above the fracture, and two more *below* the fracture. The pins of the first couple are inserted at a converging angle, as also are those of the second couple. Each pin pierces the lateral cortex and then the medial cortex until it protrudes approximately $\frac{1}{8}$ inch beyond the latter. Each pair of pins is placed as far from the fracture as possible, and near to the joint. The pins must be sharp, as dull pins make the task of insertion not only arduous but sometimes impossible. They also must be highly polished as some users have reported complications from the use of pins which have become scratched or rough through careless handling. The object in applying them at a converging angle is to ensure that, when clamped together, they will not pull out. It is advisable that all pins should be in a straight line, and all in the same plane.

The pins, of course, go straight through skin and muscle, the skin having been shaved and thoroughly cleaned beforehand. A pin-holder with adjustable chuck is used to drive the pins, and the latter, having been boiled, are placed in the holder by sterile forceps rather than by hand. Only 1 inch of pin is allowed to protrude from the holder, until some penetration has occurred, when more of the pin is let out. This is a measure of precaution against a possible sudden slip followed by running the pin right through the animal's leg, or through the operator's left hand. It also minimises pin wobble.

The pin-holder is manipulated by hand, turning it first one way and then the other so as to produce a drilling motion. Only light pressure is exerted until the pin point has started to enter the bone; and one should try as much as possible to prevent wobble, otherwise the pin will not be a tight fit in the cortex.

When all four pins have been placed the next procedure is to connect up each pair with a short connecting bar.' This bar and its two single clamps should be quite near the skin.

We now have produced two independent pin assemblies, and by grasping one in each hand, correct reduction of the fracture is simplified, as we are in fact holding a broken piece of bone in each hand and approximating the two as we think fit, and guided by the fluoroscope.

When X-ray shows all to be correct, a long pin-bar (previously fitted on) is now bolted down tightly so that the two pin assemblies are immovably maintained where the surgeon wants them.

This, in effect, completes the operation. But it is well to remind you of the niceties of application. For instance, there is often a good deal of shortening of the leg, and it is really necessary to extend the limb to normal before applying the pins, because in the process of extension the position of the skin and probably of the muscles will alter in relation to the bone beneath; and if the skin is pierced in an incorrect situation it results in unnatural stretching of the skin and musculature at all four points of pin entry, conducing to pin-hole discharge and continuous pain for the animal.

It may be helpful if I summarise the proceedings step by step.

(1) Take radiographs in two planes, as much surgical information may be gleaned from them.

(2) Apply general anaesthesia. I always use nembutal.

(3) Clip, shave, wash and disinfect the operation area.

(4) Apply the Gordon extender, the use of which will largely correct any over-riding of fragments, before inserting the pins. It will to a large degree eliminate the stretching of tissue about the pins in the course of final reduction, as well as make reduction much easier. It can be used also in reducing dislocations.

The curved portion of the extender is padded and placed in the crutch or axilla of the sound leg. The latter is fastened by a tape to the cleat at the bottom. The broken leg is attached by the hock or wrist to the movable hook. The handle of the traction-hook is now turned until the desired amount of stretching is obtained.

Traction may have to be applied slowly—from several minutes to half an hour. Do not over-extend and separate the fractured ends.

(5) Sterile drapes are now applied and the surgeon's hands scrubbed with soap and then with dettol or cetavlon, whether or not he uses gloves. Instruments have been boiled, and the operation area again wiped with ether.

(6) Whilst the extender is in position (as already described), and the broken leg assuming its normal length, the pins may now be inserted and connected up.

In the process of reduction one must have regard not only to approximation of fragments, but also to correct rotation. The limb must look normal in every respect.

(7) Examination by fluoroscope will decide whether or not the operation is satisfactory, and whether all nuts finally may be tightened.

(8) The extender is now removed, and the pin-holes in the skin dusted with sulphathiazole.

As either a box spanner or a set spanner is used for tightening nuts, see that the nuts are all of one size before starting the work; and that the spanner fits them. Also, contrive to have all the nuts on one side; that is, facing one way so that they can conveniently be reached with the spanner.

It is a useful precaution to inject penicillin for a day or two to avert sepsis. I usually give an intramuscular injection of 300,000 units of distaquaine daily. If the animal's temperature rises, the injection would be made twice daily; but so far I have had no sepsis.

One cannot be dogmatic as to how long the pins should be left in position, but generally three weeks are enough. I have removed them at two weeks in young animals and found union satisfactory. One can, however, X-ray at intervals to ascertain the amount of callus formation, and if there appears to be sufficient, the double clamps may be loosened and the strength of the union tested with the hands. If union is weak, the nuts can be tightened again and the animal given another week or two.

*Pin Positioning in Varying Sites of Fracture.*—The most satisfactory operation is one which permits of all four pins being inserted in one bone—such as in mid-shaft fractures of radius or tibia, etc., as the natural joints are left unimpeded and the animal remains ambulatory. Suppose, however, the fracture is epiphyseal at the distal end of the femur (a common site), then it may be necessary to apply two pins into the femur, above the fracture, and two pins into the tibia below the stifle joint. The long connecting-bar would then bridge the stifle and render it immobile. Very prolonged immobility might conduce to anchylosis.

A not uncommon injury of the dog is the fracture of one or both condyles at the lower end of the humerus. The fragments tend to separate outwards, and it is difficult to compress them and hold them in place. I have come across this condition on a number of occasions. Two were outstanding cases of completely smashed elbow in racing greyhounds, one of which was complicated by radial paralysis. This bitch was sold afterwards for £50. The condyles may be drawn together, and so held, by inserting a long, vitallium screw from one side to the other.

Following X-ray examination, the fracture is reduced as completely as possible. A suitable point is selected for the insertion of the bolt, and at that point a small curved incision is made and the flap of skin turned upward, exposing the bone. The drill-pointed end of the bolt is placed against the cortex and with a Kirschner hand-drill it is passed through the fragments to the opposite side. When the point of exit is noted by the elevation of skin, a similar curved incision is made on the medial side and a flap of skin turned up. Washers and nuts are now applied to both ends of the bolt, and tightened up until the bone fragments are compressed together. The protruding ends of the bolt are removed flush with the nuts with a bolt cutter. The wounds are closed and the bolt remains in permanently if it is of vitallium. A further check-up by X-rays is advisable.

This method of repair may also be adopted for fractures in the lower end of the femur, the lower end of the tibia, and for oblique fractures of long bones, where two or three bolts may be used if necessary.

Hock fractures are best treated by plating or wiring.

*Metallic Bone Plating.*—Fractures which do not lend themselves to cortical or intramedullary pinning can generally be dealt with by the application of a metal plate, screwed on. Sherman-type plates of stainless steel or vitallium may be straight or bent and of any size and with any number of holes. When highly polished they set up no irritation or chemical reaction in the tissues, even if left in permanently.

The fractured bone must be exposed to view and a suitable plate selected to bridge the fracture and fit snugly on the bone. With a stainless-steel twist drill corresponding in calibre to that of the screws to be used, or even 1/64 inch less, holes are drilled in the cortex.

The length of screws required is ascertained from radiographs. The screws are held in a specially designed surgical screwdriver so that they cannot fall out during the initial turns of the tool. When the screw has got a good grip in the cortex, the retention part of the screwdriver is removed.

Two holes are driven in one fragment and the plate approximated in position ; but before the next hole is made in the second fragment, great care must be exercised that good reduction and alignment have been perfected, or the holes will be drilled in the wrong places, and the bone left crooked instead of straight. In this connection very much depends upon the correct position of the fourth hole.

It is essential that both cortices are penetrated, otherwise my experience is that the screws work loose and eventually may fall out.

The wounds are dusted with flavazole or penicillin, and then sutured.

The whole limb is now wrapped in cotton wool, over which a shaped aluminium splint is applied and bandaged, to afford protection and additional support.

At the end of about three weeks the plate may either be removed or left in for good.

Penicillin injections will certainly be needed here in consequence of surgical open-reduction, and even more certainly in cases which are presented as compound fractures.

*Fracture of the os calcis* is well treated by metallic plating though for the busy practitioner this is a somewhat formidable and time-consuming task needing some experience.

It is interesting, therefore, to bring to your notice the method devised by Middleton Perry in which he uses a metal splint placed down the back of the leg from the point of the hock nearly to the foot. This is well padded and fastened in place by two or more bands of adhesive plaster, encircling both the splint itself and the tarsal and metatarsal bones.

With the dog under general anaesthesia, an incision is made through the tissues immediately in front of and just below the head of the os calcis, and through it the cross-piece is inserted. It is secured to the main body of the instrument by a bolt on each side, the nuts of which are then adjusted so that the calcis is pulled backwards into correct alignment. The cross-piece is of stainless steel. Twice, when using this, there developed unaccountable pressure necrosis in spite of interposing a ¼ inch slab of sorbo rubber.

Another method which I have tried is to place a thin strip of iron down the back of the hock, slightly bent backwards at its upper end. The lower end of this iron is firmly attached to the metatarsus by plaster or adhesive tape. A fine hole is drilled through the tuber calcis, through which is passed a short length of silver wire, the two ends of which are threaded through small holes in the iron strip, and then twisted together until the upper broken fragment of bone is brought back into alignment with the lower fixed fragment.

J. K. Bateman introduced another simple method consisting of the application of a short stainless-steel plate from the distal end of the tibia to the head of the os calcis. By fully extending the hock joint, tension of the Achilles tendon is taken off the calcis, which then may be manipulated back into its normal position. Whilst so held, the surgeon can estimate the length of plate likely to be required. After incisions have been made over each screw position, the plate is passed through one (beneath the skin) and out at the other and is then screwed down tightly. The plate is left beneath the tissues and the wound sutured. I, personally, then apply an angular aluminium splint anterior to the hock, in order to ensure rigidity and immobility of the joint whilst bony union takes place.

Every practitioner whose duties involve the treatment of racing greyhounds knows only too well the difficulty hitherto experienced with gross lesions of the tarsus. Whether these be actual fracture of the calcis, or of the scaphoid bone, or complete rupture of the interosseous ligaments, the deformity of the joint is obvious and impossible to rectify by means of plaster casts. I have had from 300 to 450 greyhounds continually under my charge for the last 22 years, and hock lesions had always been my greatest worry, until this year (1951).

I still have not found the solution to fracture or dislocation of the scaphoid bone, except to immobilise and induce anchylosis between the row of small tarsal bones.

## Fractures in Large Animals

I consider this subject has been too long neglected. Extraordinary advances in medicine and surgery have been made in the last five years, and yet this particular matter virtually has been by-passed.

I have always deplored the shooting of horses which is commonly carried out without a second thought, and sometimes even on a *supposed* diagnosis of fracture. I add this because there was a recent instance of a thoroughbred being shot on a racecourse near London, though on *post-mortem* examination no fracture was found.

About two years ago I started a controversy in *The Veterinary Record*, with the mixed feeling that not only were we losing good horses when they are already too scarce, but that owners might find such sudden deaths altogether too costly for them, thus leading to the prospect of decreased demand and further scarcity. I felt, too, that this accepted practice did not really redound to the credit of a progressive profession. It was common enough to hear the layman ask "Why can't the vets do anything useful about these fractures?" A few years ago we really could not do a lot, but I contend that, to-day, with the advent of well-designed apparatus, and the safeguard of penicillin, we can do much if only we will try. The correspondence in the *Record* carried on for about 18 months, some writers preferring to think the obstacles were insurmountable; others welcoming the trial of new methods, and giving accounts of past successes by means of crude appliances.

I fear that quite a lot of my colleagues are defeatists where horse fractures are concerned, and it may be that there are one or two very strong reasons for this. First, take the case of the practitioner who is harassed to death, with every hour of the day filled. He is suddenly faced with an equine fracture. By tradition he reaches for the gun. The horse-owner, brought up in the same belief, acquiesces. What would be the alternative? The summoning of an ambulance; waiting for it; getting the horse home; getting it radiographed, and—worst of all—preparing to operate, etc. All of this—time-consuming and exasperating. The busy man, in despair, says to himself, "Shoot it, and waste no further time." All of you know this sort of reasoning must prevail in innumerable cases. But none of it proves that a satisfactory repair could not have been effected in a fair percentage of cases. Nobody tried, so nobody knows. Then there is the case where a horse is insured for perhaps £1,000. The owner and his adviser are doubtful of the prognosis and they agree to shoot the horse and claim the money. This, of course, is a powerful incentive for destruction, but I make bold to say that when insurance underwriters become at last aware that numerous horses *could* be saved, it is likely that permission will have to be obtained before a horse can be shot.

This is looking well ahead, for I grant that there might be extenuating circumstances such as of gross fracture—compound, comminuted, or both—which on humanitarian grounds alone would have justified destruction. I do know that Lloyd's livestock underwriters are paying very close attention to the whole problem. This clamour for insurance money is undoubtedly a strong factor against any wish or attempt at cure by orthopaedic surgery. Some horses are not insured, and some are owned by people who hold them in sentimental regard. For my part, I am glad to know that there are still some people who love their horses and would go to any length to save their lives. But they must not be met by a veterinary adviser who says there is no cure. What does it cost to find out? A couple of months' keep only. And how surprised some people are at what *Nature* can effect—if given time.

Some of you may remember my clinical case report of about four years ago, concerning the repair of a fractured suffraginis in a hunter. Had it not been for the local veterinary surgeon asking for an X-ray and feeling opposed to immediate destruction, this excellent mare would now be dead. I went down to Minehead, found the trouble, and with the help of a blacksmith and his brazier, we fashioned an iron splint which was comfortably affixed and held in position by plaster of paris. Only last week I had a letter from the owner to the effect that "Black Beauty" had bred a very good filly foal and was now in foal again to "Saints' Fly," who won his class at the stallion show at Derby two years running. She is not *quite* sound, but notwithstanding her slight disability, she was able to win the Reserve Championship as brood mare at the Hunter Show in Shrewsbury in 1950. That is very gratifying.

Surely plenty of mares, cows or bulls might be alive to-day and producing or begetting progeny if sudden death had not been their lot in consequence of fracture. I am not so foolish as to suggest that 70, 60, or even 50 per cent. of such animals can be saved, but I do think that probably 40 per cent. might be. And that figure might well rise as we gained experience. I base that estimate of 40 per cent. upon the radiographs of horse fractures I have taken over a number of years. The possibility of useful repair would depend upon a number of factors, such as how far an articulation had been involved, the amount of comminution or displacement, temperament and age of the animal, equipment and convenience available, etc. Thus each case would have to be decided on its merits and in view of radiographic findings.

I remember vividly the atrocious kicks sustained by horses and mules when tethered on the transport lines in the First World War. The tibia was frequently implicated, and the victim was often unable to take weight on the leg for a fortnight or more. We had no X-rays and did not know for sure whether the bone was fractured or not. *Because* we did not know, these horses were not shot. Neither were they slung; but they recovered and returned to duty. This must dispose of the question of destruction on humanitarian grounds.

John Kendrick, writing recently in the *Cornell Veterinarian*, recorded the complete recovery of four tibial and two radial fractures by pinning. Dr. Nielsen, of Copenhagen, was quite definite when he said, at the 67th International Congress, that in a number of cases of equine fracture, there were indications for operative treatment, although he had not personally attempted it. Then there was the remarkable case of the eight-year-old racehorse "Overland," which broke a leg, was ordered to be destroyed, but although insured for £1,000 the owner had it treated. Six months later it won the 2-mile March handicap steeplechase. I knew of another racehorse at Epsom which broke a pastern, recovered, raced again and then, by the greatest ill fortune, broke another leg. Almost incredibly, the second fracture was successfully treated and the animal restored to usefulness. Many of you will remember the racehorse "Your Host," which broke a leg in America. It was insured at Lloyd's for £90,000, but the underwriters took good action in this case and had the bone pinned with the result that the horse is now at stud and is valued at some £30,000.

In course of conversations with colleagues, other similar instances have come to light, and no doubt there are many more of which I have not heard.

I hope that what I have said up to now will have been accepted as proof that horses' bones can and will unite if given adequate assistance. And, so far as I am aware, nobody except Kendrick has yet successfully used the modern pinning methods which have proved so successful in the small animals.

I think, at this date, we may reasonably assume that a satisfactory surgical appliance and technique *are* available, and we have penicillin to counter sepsis.

What, then, are our difficulties? There are a few, and they are admittedly formidable; but I feel confident that after repeated trial and error by a large number of practitioners, much will be learned and many of the troubles eradicated. The fact is we are (as a profession) lamentably ill-equipped for undertaking bone synthesis in heavy animals.

We have no adequately designed ambulances, and no organised (or well-thought-out) methods of transporting the injured animal to its home, or to a hospital. Secondly, there is often no X-ray apparatus, nor are there any perfected pins, plates, or other impedimenta worthy of the surgical task.

*Ambulances.*—Taking first things first, let us consider the ambulance. Does anybody in this room know where to find, in the neighbourhood of any racecourse in England, a vehicle capable of humanely picking up an injured animal? Racecourses provide no facilities, so that horses which fall with broken legs must die.

Supposing, on the other hand, that the whereabouts of an ambulance within an area of 25 miles around every racecourse in this country was known to the veterinary surgeon, his first headache would be eliminated.

And by the word "ambulance" I do not mean just a means of conveyance for sound animals able to walk, but one which is so designed as to *lift* the invalid into its interior, with no threats, coaxing, pain or sweat.

We need an entirely new type of ambulance, one which has—provided in its roof—a steel rail from which is suspended a movable or false floor. The latter would be run out on to the road by means of wheels on the rail above. This floor would be pushed close to the horse's spine as it lay on the ground, and the horse, after first-aid, would be rolled over on to it. By means of a winch, this floor and its patient would be raised off the ground and brought forward into the vehicle, which then would be closed up.

If the horse was already on its feet, it would be lifted by slings directly into the ambulance, *not made to walk in.*

*The first-aid* in such cases would be the immobilisation of the broken limb with thickly padded stout splints of wood or metal, designed to fit the various shapes of all bones. A universal or standard organisation would provide that such appliances would be habitually carried on the ambulance, together with cotton wool, bandages, hypodermic syringes, drugs, ropes, slings, and every item likely to be required. The patient could be sedated, if necessary, to prevent struggling and pain, with some drug of the practitioner's choice. Or perhaps it could receive a nerve block with proctocaine.

I believe that all new ambulances should be built on this plan, and all old ones modified to the same design. Thus horses in the streets, hunters in the field, or racehorses on courses might be got home with a minimum of labour or loss of time—but certainly with comfort for the victim. This is the humanitarian side of the picture which should arouse the sympathies and practical help of the animal protection societies.

The question might be raised of the cost of such an ambulance, in answer to which I would say that the essential difference between existing horse-transport vehicles and what I envisage, would be the addition of a rail in the roof, of course adequately supported, upon which the wheels would run that carry the movable floor. This could be incorporated into a four-wheeled trailer capable of being towed by any car, jeep or tractor; it need not be an expensive affair at all.

I believe that a sympathetic animal-loving public might be induced to subscribe to a fund for the provision of such trailers in each county. There should be plenty of support from the hunting fraternity, as it is probably the hunter that is most vulnerable to fracture. The rich animal-charities might also be expected to help. The firm of Gilbert Rice, Ltd., of Horsham, which makes a speciality of building horse-carrying vehicles, wrote that they commended the scheme but thought the question of finance was the only obstacle. The Lambourn Racehorse Transport Service wrote that they would find no difficulty in designing and building an efficient ambulance if any society, taking an interest in that class of thing, should require one built.

In these early days of pioneering, whilst we have no such vehicles, it might still be possible in the field to build a shelter, around the horse, with bales of pressed hay, covered by a tarpaulin sheet. No radiograph could be taken in such a case but the surgeon might be able to perform a useful repair—under anaesthesia—without it.

Moreover, the horse could stay there indefinitely, and could even be put in slings in such a shelter. Otherwise, radiography before, during, and after the operation would be of the greatest assistance in ensuring precision.

The actual repair of bones would follow very largely the principles adopted in the dog, some cases being suitable for cortical pinning and others for plating. Some indeed might be well served by merely applying a stout gypsona cast. It should be remembered that the medial surfaces of the radius, the tibia, the metacarpal and metatarsal bones are all subcutaneous and lend themselves to plating—though plates of toughened steel in adequate thickness would be needed. Whether plating or cortical pinning, or mere coaptation by screws were adopted, I am sure that in *all* cases these appliances should not be expected or allowed to take the whole weight and strain, but that a stout plaster reinforcement should be added. To the latter should be applied one layer of glassona as a water-proofer. Given satisfactory reduction, immobilisation, and adequate external reinforcement, a horse would very soon take some weight on the leg, and render the use of slings unnecessary.

I have brought for your inspection two types of apparatus for fracture repair, both built by a London firm of engineers (Messrs. Flint & Brown). One is an adaptation of the Kirschner-Ehmer principle, though the very special design of the clamps is an immense improvement.

The bolts with which the K.-E. clamps are tightened have a great tendency to bend—in fact, they often *do* bend or break when the nut is tightened. This cannot happen with the clamp I am showing you.

The pins are of ¼ inch chromised steel and the connecting bars are of 7/16 high tensile steel. This apparatus can be used in the pinning of any long-bone fracture, though I think at the moment we cannot contemplate any attempt at repair *above* the elbow or stifle, and for two reasons. First the mass of muscle in those areas would mean that the clamps would be far removed from the bone, which in turn would necessitate the use of very long pins with the obvious result that they would bend or break. For great strength the clamps must be near the bone.

The second reason is that, above the stifle or elbow, it would be impossible to apply a satisfactory plaster cast. Any fracture below those joints offers a good chance of successful repair.

In using such stout pins to penetrate the dense cortex of an equine bone, I find it advantageous first to drill the hole with a brace and bit. The calibre of the twist drill should be a shade smaller than that of the pin to ensure that the latter shall be a tight fit.

This type of apparatus would be of no use in the case of fractured suffraginis, and it seemed essential to devise some means of dealing with such a case.

*New Instrument.*—Accordingly, I designed an apparatus (exhibited) especially for the repair of fractures so located. This also was made by Flint and Brown, Ltd. The suffraginis is very commonly fractured, and, up to date, nothing beyond plaster casting has been thought of for its repair. The principle of my appliance is that one end of it is pinned into

the cannon bone, and the other end firmly clamps on to the shoe. Thus, from the point of entry of the pins through the cannon bone, the weight of the horse is borne by the side bars direct to the ground, no weight being taken either by the fetlock joint or the fracture beneath it. The pins are driven right through the bone so that an equal length (about 2 inches) protrudes on the medial as on the lateral surface. This arrangement avoids the use of four pins. The pins are roughly 3 inches apart, and may converge towards each other at a slight angle. The side bars are so swivelled that they can conform to the slope of the pastern, and can also be adjusted inwards toward the cannon bone.

The limb, from the knee or hock downwards, together with the appliance, are now enveloped in a strong casing of gypsona prepared in slabs suitable for this work. The first layer of gypsona surrounds only the limb itself, whilst the second layer buries the apparatus as well. A final thin layer of glassona completes the task and protects the plaster from getting wet.

All of this might have been carried out under local anaesthesia with the horse standing; if so, we are relieved of the problem of getting it to its feet. It may then be put in slings for a few days until the first shock and pain of the break has worn off.

If the horse is recumbent, under general anaesthesia, we must wait until there is sufficient consciousness to enable the animal to stand—with help. To get it to its feet, an apparatus which is used by the London Fire Brigade would be most useful. This apparatus consists of four 8-foot lengths of chain over which felt and leather have been sewn.

Fig. 1.—Covered-chain type of sling as used by the London Fire Brigade.

Fig. 2.—The chains are pulled under the horse's body by means of a thin metal lath with a hook at one end. The man on the left is manipulating this lath.

Fig. 3.—With chains now in position, the cross-bar and pulley are then attached. The pulley could be operated from a breakdown lorry.

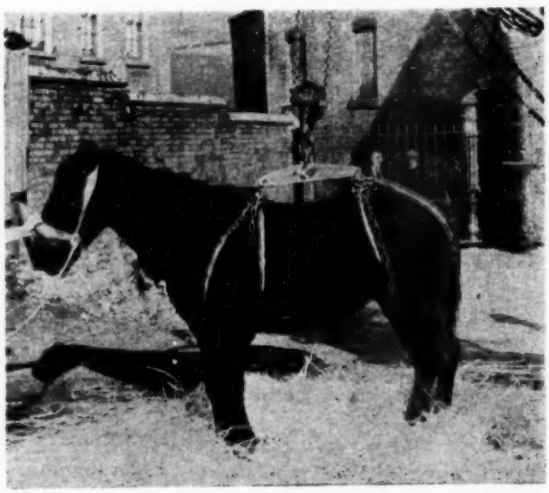

Fig. 4.—The horse is up. The slings are shown applied by a method which is not recommended. The covered-chain slings should not merely pass round the axilla or groin but should cross over, *i.e.*, the sling should pass behind the elbow joint, cross the breast and come up the other side; and in the case of the hind leg—pass under the groin on one side and come up on the other side. This would avoid injury and possible paralysis.

Each has a ring at either end, and they are pulled under the horse's body by means of a hooked lath (see Figs. 1 to 4). Two are placed in the axillae, their ends being brought up and locked together at the withers ; whilst the other two are put round the groin and their ends fastened together at the croup. A crossbar now connects the two pairs ; and by means of a block and tackle, the horse is easily raised and cannot fall out. This is the apparatus used by the Fire Brigade to extricate horses out of pits and cellars and other inaccessible places. I spent an hour one day at their headquarters having it demonstrated and explained. It is a simple and very inexpensive device capable of being made up by any good harness maker.

Those who conduct large-animal practices will be conversant with the practical limitations in dealing with injured animals, and these limitations become even more emphasised if we have not given intense thought to the problem, and have not evolved efficient mechanical aids.

I can visualise a time when the present pioneers will have laid such a smooth trail for posterity that a horse with a fracture will be automatically considered a definite case for hospital rather than for the abattoir.

Fig. 5.

Fig. 6.

Fig. 5.—Cannon bone fractured at arrow. Set by an adaptation of Kirschner-Ehmer pinning apparatus. The bone is then enclosed in a plaster cast and a second cast encloses the whole apparatus.

Fig. 6.—Lateral view of the same leg. This exhibit was a morbid specimen which unfortunately had assumed the flexed position before it was pinned.

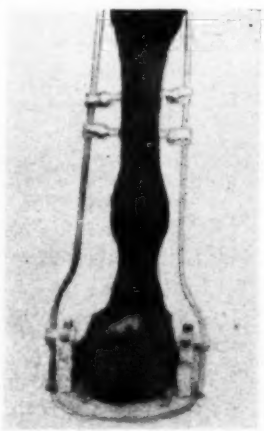

Fig. 7.

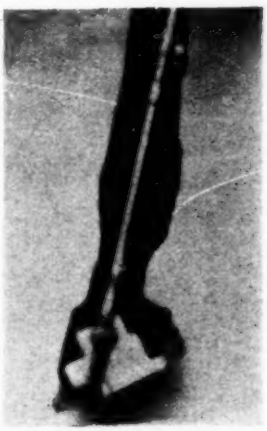

Fig. 8.

Fig. 7.—The author's own conception of an apparatus specifically for use in cases of fractured suffraginis. Two stout pins penetrate the cannon bone at a converging angle and protrude equally on both sides of the bone. The side bars are attached to a metal plate, which again is fastened to the shoe. The horse's weight is taken by the pins, thence down the side bars to the ground. Pressure is thus removed from the fracture. The whole is finally encased in plaster.

Fig. 8.—Lateral view of the same apparatus as applied.

## Discussions

### (A) By the South Wales Division

This discussion was opened by Mr. W. R. Griffiths, F.R.C.V.S., of Newport, who first voiced the thanks of the Division to Major Kirk for his visit and demonstration of the best methods of fracture repair, adding their appreciation of the efforts of members, such as he, who were constantly attempting to improve the standards and methods of surgical interference.

Mr. Wynne Griffiths continued : It is very easy to plead difficulties and lack of facilities, but we must remember that those who pioneer often have the greatest difficulties to overcome. We should always strive to perfect our methods and none should be so critical of our work as we ourselves.

The whole approach to large-animal orthopaedic work presents somewhat different detailed problems from those which confront the small-animal surgeon. In general, it can be summed up under the sections of :—

Diagnosis, Anaesthesia, The Operation and Sequelae.

Diagnosis.—This is obviously of very great importance and presents one big difference from small-animal surgery. In the latter, diagnosis is established before operation, but in large-animal work it may be impossible to diagnose accurately until the structures are exposed. This burden of difficulty in diagnosis is largely due to the inability of X-rays to penetrate the thicker structures or the impossibility of transporting X-ray apparatus to the injured animal. One might argue that the patient should be brought to a suitable place, but this again may be impossible. As an illustration of this difficulty, I will cite a recent case of a 15-month-old Guernsey heifer which I saw. The condition had already been diagnosed as a fractured humerus. The animal was isolated in a field and it was quite impossible to remove it. The heifer was anaesthetised and an incision made through the skin over the lateral aspect of the humerus. On further examination it was found the bone was intact, although from the clinical examination it had appeared to be fractured. The skin was sutured and the owner advised to keep the animal, which subsequently made a complete recovery. I have found similar cases which showed no fracture after radiography.

The applications of modern methods of fracture repair in large animals quite obviously present problems, apart from the very important economic ones, which at present rather limit their application. However, this should not deter us from striving to overcome them.

Anaesthesia.—I do not intend to advocate any particular type of anaesthetic for fear of diverting the discussion to this possibly controversial subject, except to say that it should be of adequate length and give complete relaxation. However, in operations of long duration it would appear that muscle relaxants could be used, thereby reducing shock from prolonged deep anaesthesia with consequent increase in venous pressure and lowered cardiac output and risk of damage to the myocardium.

Operation.—This has already been dealt with very fully and efficiently this afternoon.

SEQUELAE

(1) *Infection.*—This may be due to contamination of the site at the time of the accident or during the operation. Penicillin is of great value locally and parenterally. Great emphasis, however, should be placed upon aseptic methods during the operation and penicillin used to control infection rather than cure it. The skin should be shaved, cleansed and treated with antiseptics; for example, wiping with cetavlon followed by spirit, and the procedure repeated twice, occupying about seven minutes in all. Repeated boiling of pins may lead to softening but immersion in an antiseptic solution for several hours is satisfactory. Infection from a remote source is no real danger. Suturing of the wound too tightly, due to the increased tension following the insertion of a plate, gives rise to pressure necrosis of the skin or cutting through of the sutures which admits infection and must therefore be avoided. Before operating it is better to wait until the swelling is reduced. Infection on removal of the plate or pin is not a serious danger. A layer of fibrous tissue walls off the fracture site and tension is obviously reduced and the skin closes easily.

(2) *Non-union.*—This can result from both ends not being in contact. If the overall length of the bone is increased above normal, a gap of even a few millimetres cannot be bridged. This is possible with plating and therefore care should be taken to ensure that the ends are in firm contact. A slotted plate can be used and both portions of bone forced together if necessary. If non-union occurs the site must be exposed, when the ends will be found to be sclerotic with no opening to the medullary cavity. The ends should be freshened and brought into firm contact.

(3) *Avascular Necrosis* can take place from the plate pressing on the periosteum in comminuted fractures. It is always essential to preserve the periosteum, otherwise nutrition of the bone will be affected.

(4) *Muscle Fibrosis and Joint Stiffness* can occur from the delay in reduction and scarring of muscles from the surgical approach.

(5) *Local Reaction* to the foreign body may take place, giving rise to a sterile abscess and bursa formation. No metal is completely inert and if left in position for a considerable time some electrolytic action takes place. Pins become pushed out and reaction occurs around plates and screws. In the latter case it can be seen on an X-ray plate as a translucent ring around the screw.

(6) *Accidents.*—Occasionally pins are found to break or bend. This is not surprising when the amount of leverage involved in the functioning of a long bone like a femur is considered. Such pins can be removed and new ones inserted. Intramedullary pins that are too short or too narrow allow rotation and may break or bend.

Accidents may occur during operation when attempting to engage the distal end with the aid of screening. It is possible to damage the femoral vessels and nerves. Also there exists the possibility of risk to the surgeon from continual exposure to X-rays. Perhaps Major Kirk could give us his views on all these aspects.

(7) *Embolism* has been mentioned as a possible risk but does not appear to be of any importance as a result of bone pinning. It is most likely to occur from immobility and thrombosis at the fracture site.

(8) *Availability of Calcium for Repair.*—Low blood calcium produced by a deficient diet does not slow down the rate of healing or lead to non-union. However, increase of blood calcium brought about by the use of parathyroid extract stimulates union. Perhaps Major Kirk could tell us whether he has used it to accelerate healing in certain cases. Bone grafts act as a local reservoir of calcium as well as acting as splints.

Once again I should like to thank Major Kirk for teaching us his methods which I am sure will make us more efficient in dealing with the cases we shall be called upon to treat.

Miss O. JAMES, M.R.C.V.S., Cardiff, who was the second opener of the discussion, said: I should like to thank Major Kirk for a most interesting lecture and demonstration and to join with my fellow-opener, Mr. Wynne Griffiths, in an expression of appreciation of his efforts to avoid the unnecessary slaughter of large animals with fractures.

I am afraid that up to to-day I have not been very modern in my treatment of fractures in small animals as I am not convinced that the newest method is always the best; after to-day, however, I hope to be more enterprising.

Hitherto, I have restricted the use of bone pinning methods to special cases and my experience has been limited to intramedullary pinning—I should like to hear Major Kirk's views on this method.

For general treatment of fractures I use variations of gypsona casts together with such ancillary methods of diagnosis and treatment as radiology, physiotherapy, parenteral and local use of antibiotics and the use of impregnated tulle dressings and acriflavine emulsion. Of a series of 200 fractures in dogs and cats, both simple and compound, treated by these methods there were 160 complete recoveries, four cases of gangrene and three of non-union. The callus varied from excess callus formation to "psychological" lameness—which reminds me that modern treatment must include the psychology of our patients, as in several instances after removal of plaster clinical and radiological examinations failed to account for a continuing lameness; a bandage on the opposite leg resulted in a transfer of the lameness to that member!

I have found a useful preventative of plaster sores to be a strip of felt incorporated in the plaster over pressure parts.

Some years ago I had several spectacular successes and several equally spectacular failures with bone pegging; I should like to know whether Major Kirk has had any experience of this method.

In conclusion, could Major Kirk give me the approximate duration of an average operation using Kirschner-Ehmer splints?

The general discussion was opened by the following question, from Mr. D. H. WILLIAMS: In the light of modern methods what would be the treatment of fracture of the neck of the femur of the dog?

Mr. D. G. LLEWELLYN followed with enquiries as to whether Major Kirk had encountered any pseudo-arthrosis (false joint) with the Kirschner-Ehmer type of splint; also had that splint been used in a case of pseudo-arthrosis following the application of a plaster cast?

Mr. C. J. PUGH, having expressed his thanks to Major Kirk for going there and giving them such a delightful talk and demonstration on his pioneer experimental work on fracture reduction and repair, asked him what he did when there was complete fracture of the pastern bone involving the articular surfaces. His experience had been that once the articular surface was involved, one could not do anything to effect a repair. In these cases erosion always occurred and the animal was useless.

Proceeding, Mr. Pugh criticised the caliper demonstration in the repair of fractures of the pedal bone of the horse. In the first place, he did not think the calipers were strong enough to withstand the weight of the horse, especially the heavier breeds. Also, he thought the regulating adjustment rod was wrongly placed; as it was placed now under the horse's foot it was bound to go out of alignment with any pressure, and inevitably the regulating thread would be damaged. In his opinion the regulating rod should be placed a little way up the leg for protection—exactly half way up the lateral supports.

Mr. R. W. HALL asked Major Kirk if he had met with deferred displacement of the broken fragments in a fractured tibia of the horse. This occurred in a case seven to eight days after a kick from another horse. The animal then went severely and suddenly lame and a fracture of the tibia was diagnosed over the seat of the injury and the horse was destroyed.

Severe injuries to the inside of the tibia, although not showing positive evidence of a fracture, should be treated as such. The horse should be placed in slings and a charge or plaster and splints applied to the affected limb. In his experience this precautionary treatment had proved well worth while. The absence of displacement of the broken fragments was probably due to the thick periosteum covering the tibia.

In cows and young stock, where there was fracture of the long bones, such as the radius, the metacarpal or metatarsal bones, he used a thick charge and splints, kept in position with adhesive plaster. The advantage of the charge was that it was impervious to moisture.

Mr. F. V. JOHN showed radiographs of an attempted repair of a fractured femur in a sheep dog. Radiographs taken immediately after the operation showed apparent satisfactory results, but subsequent plates revealed progressive shortening of the femur with bone destruction at the fracture site. He asked Major Kirk if he agreed that infection was the most probable cause of this.

Had Major Kirk experience of the use of the intramedullary pin in epiphyseal fractures? Did he think the pin would grip the detached epiphysis?

What was the capital cost of the assemblies demonstrated by Major Kirk for use in the large animals?

*The Reply*

Major Kirk: It had given him a good deal of pleasure to have come among them that day and to find that his small effort had evoked such considerable interest, from such an excellent attendance. It was most gratifying to have been told by two or three of them that whilst the meeting was initially sceptical, it was now mostly convinced that large-animal fractures could and should be treated. It was his express aim to convert them to that belief.

His thanks were due to Mr. Griffiths for his lucid opening of the discussion, one or two points in which required an answer. He stated that in small-animal surgery diagnosis was established before operation, and that in large-animal work that might be impossible without exposing the structures. Mr. Griffiths thought the difficulty lay in the inability of X-rays to penetrate thick musculatures. It should, of course, be the aim to ascertain the nature and extent of a fracture before attempting to repair it. There might, however, be neither apparatus nor electrical supply and then one would have to rely upon palpation. In any case, as he could not at the moment see much prospect of success with fractures above the elbow or stifle, there would be no occasion to try to radiograph through thick muscles. The fluoroscope would be impracticable, and probably impossible; but a radiograph would afford a permanent record and would provide the operator with an opportunity to measure for length of screws, plates or pins, etc. Open reduction might on occasion be the best method of reducing a fracture, but it was not by any means obligatory.

The case of the heifer recorded by Mr. Griffiths, which was clinically diagnosed as having a fractured humerus, went a long way to support his contention that many animals must have been shot in the past because no effort was made to go deeper into the possibilities of saving them. Indeed, he could see that if an animal was shot on a diagnosis of fracture which on *post-mortem* examination was found to be non-existent, the veterinary surgeon might be sued for negligence. Mr. Griffiths foresaw a difficulty in suturing a wound over a plate if much swelling was present. It would not be the plate that caused the difficulty, but the oedema; and, of course, by the use of Kirschner-Ehmer pins there was no plate, no wound and no suturing.

He had never found necrosis to arise from the presence of a plate. Mr. Griffiths said that no metal was completely inert when buried; but that was not a fact, as vitallium occasioned no reaction whatever, even if left in permanently. So far as his own experience (and he believed that of others) went, highly polished stainless steel had never yet set up any reaction. Mr. Griffiths had asserted that intramedullary pins in long bones of large animals might bend or break. He (Major Kirk) certainly believed that, and for that reason would not employ them. The danger referred to, of continued exposure of the surgeon to X-rays when using a fluoroscope, was of some importance unless care was exercised. But fluoroscope handles were protected by lead, and one could wear impervious gloves. Yet he did not like the fluoroscope very much, especially as it had to be used in the dark.

He was asked whether the administration of parathyroid extract could stimulate union by increasing blood calcium. Actually, the reverse would happen as, although parathyroid increased blood calcium, it did so at the expense of the bones from which it withdrew calcium. He made that experiment years ago, but with disastrous results.

In answer to Miss James's query as to his views on intramedullary pinning, he must at once say that he had not used it. He saw disadvantages in it which did not appear to pertain to the cortical pinning method, and he felt it had no advantages over the latter. The method which one became used to, and expert at, was as a rule the *best* method, provided it accomplished a scientific reduction and fixation of a fracture. He had done no bone pegging. Miss James asked the approximate duration of a Kirschner-Ehmer operation. By the time he had radiographed the animal, selected the appropriate pins, bars and other apparatus, assembled the instruments likely to be wanted, sterilised all that had to be so treated, anaesthetised the animal, clipped and washed the area of operation, provided antidotes to the anaesthetic, operated, and X-rayed the first result, probably made adjustments and X-rayed again, anything from two and a half to three hours would have passed. Then, of course, everything had to be washed and put away afterwards; so that one really earned the fee charged.

In reply to Mr. Williams, none of the three modern methods (plating, intramedullary pinning or cortical pinning) could be applied to fracture of the femoral neck. There was a method used in human surgery by which a screw was driven through the neck and into the head of the femur, after making an incision through the skin, etc., on the lateral surface of the femur, but he feared that in the case of a dog, the available thickness and width of the bone was so meagre that the screw would not hold. Probably the best method to adopt would be to immobilise the leg, and hip joint, as perfectly as possible by means of a Thomas splint, or a pitch charge to surround the whole area.

Mr. Llewellyn had asked if he had encountered pseudo-arthrosis with K.-E. splinting. He had not so far, but he had been bothered with it after the use of plaster casts. Not that he could believe this was due to any inherent fault in the cast method; probably it was an outcome of some endocrine dysfunction—in some cases it might be due to age and an inability to rebuild damaged tissue. The last case of pseudo-arthrosis occurred in his practice before the Kirschner-Ehmer method was available. In that case he implanted a pellet of testosterone (upon expert advice) and was most gratified with the ultimate result in an eight-year-old dog.

He agreed with Mr. Pugh (Newport) that if an articular surface was involved in fracture, the prognosis was much less favourable. Much depended, however, upon the degree of involvement, and its position. Repair could still be effected, but the end result would depend upon how much exostosis (if any) occurred. In the case of a bull, cow, stallion or brood mare, a slight permanent lameness would still leave these animals useful for breeding purposes.

Mr. Pugh had criticised the caliper apparatus for repair of fracture of the cannon bone, os suffraginis and os coronae, thinking it not strong enough to withstand a horse's weight. Mr. Pugh probably was correct, but it was never intended that it should do so, as he (Major Kirk) distinctly stated that the whole affected area should afterwards be encased in a stout plaster cast, in order that no strain should be imposed upon the pins and bars. With such support and immobilisation a horse should be able to take some weight upon the injured limb, sufficient at any rate to permit discontinuance of the use of slings after three or four days. As regards the position of adjustment rods, these again were embedded in plaster, and no movement could take place.

At this juncture it had to be realised by all that we could not draw upon past experience, and one great object of that and succeeding demonstrations was to find the weak spots, and bring all our combined ingenuity towards perfecting the apparatus and the procedure. He heartily welcomed constructive criticism as he knew that through its agency posterity would formulate an approved basis of surgical perfection.

He was in agreement with Mr. Hall's statement that initial injuries to the horse's tibia, not diagnosed as fracture, might later give all the accepted evidence of such a complication: he must have seen that many scores of times during the First World War. The original injury was most likely a linear fracture with neither crepitus nor displacement, and then after about a week the horse would either move about on the leg (or be kicked at the same spot) with the result that fracture became clinically obvious. As Mr. Hall had said, suspicious cases should be placed in slings, and certainly separated from other horses. Many destructions could have been saved in the past and could be avoided in future if colleagues (in the absence of X-rays) would enforce precautionary measures.

In conclusion, Major Kirk dealt with the radiographs shown by Mr. John which portrayed bone destruction at the fracture site. This unfortunate sequel happened but seldom and might then be due to withdrawal of calcium through some endocrine upset. There probably was a calcium/phosphorus imbalance which could have been determined by blood examination. Infection was a possibility, in which case, however, pyrexia would have been expected.

As to the value of intramedullary pins in epiphyseal fractures, he had read reports of their successful use. Yet, in so many cases, the epiphyseal fragment was so small that he personally would prefer K.-E. splinting.

The capital cost of equipping himself for pinning of small animals was something over £15. The caliper apparatus exhibited that day cost him £25 without accessories. To acquire all one needed for both large and small animals would cost a little less than £50.

(B) Discussion by the Lincolnshire and District Division

The discussion was opened by Mr. R. H. Smythe, whose paper was read in his unavoidable absence, as follows:—

I am extremely sorry that I am unable to be present this afternoon to greet my old friend Hamilton Kirk and open the discussion personally. However, I have been favoured with a copy of the paper which is in the essayist's best style and reflects his cheery optimism, much needed nowadays.

My own first efforts at bone plating date back to 30 years ago, when I first robbed my young son's Meccano set of its perforated plates, which I employed, together with an assortment of wood screws of various metallic composition, to carry out the open plating of the fractured humerus of a mongrel terrier, in which one end of the bone had transfixed a muscle. I might add that in spite of the absence of the umbrella of penicillin and the presence, undoubtedly, of every form of electrolytic action, the case made an uneventful recovery and the plates were retrieved, none the worse, six weeks later. Encouraged by this effort, I advanced to the use of silver wire to effect apposition of the fractured portions of bone, reinforced by perforated aluminium splints to maintain it. Nowadays, I use stainless steel wire and still like this method in fractures of the radius and ulna, tibia and olecranon if it appears unlikely that these will respond satisfactorily to plaster or metal splinting alone. I have found the Kirschner-Ehmer splint excellent for the tibia and humerus and for the treatment of supra-condyloid fractures of the femur. However, unless penicillin is administered fairly regularly, there is a tendency for infection to extend along the pins. I think the essayist is right when he emphasises the need for correct positioning of the pins. If the skin tends to pull on a pin, or if a muscle is transfixed, infection seems to follow, apart from discomfort of the patient.

Although I fully appreciate the newer methods in selected cases, I am still an advocate of plaster bandages in the majority of fractures. The bad name given to this form of treatment is not always the fault of the method but of the surgeon. Too many apply far too much plaster, much too tightly, without sufficient regard for protuberances or extremities. If a dog is uncomfortable in plaster, he pulls it off, which I regard as very sensible behaviour. Although all my results might not stand X-ray examination, I am quite happy if I am unable later to determine by examination which was the fractured limb so long as the animal regains full use of it. If the greyhound can catch rabbits or the spaniel can retrieve a hare without lameness, it is wiser to refrain from further radiography. In intramedullary pinning I prefer the open method, but it is unsuitable for large breeds unless they are adult as the bones tend to grow faster than the pins in a comparatively short time in young animals. I am a little unorthodox as I do most of my bone surgery with a narcotic such as morphia and local infiltration of the fracture area, using 2 per cent. procaine, with the addition of 100,000 units of penicillin in each 5 c.c.

I find a foot of catapult elastic, under very slight tension, is the best method of securing relaxation of muscles and extension of the limb. One end is attached to the lowest part of the limb, the other to the table and the tension is adjusted by altering the position of the dog.

I am greatly interested in the method the essayist has described for picking up and transporting injured animals. If it were an economic proposition, it would be useful if such transport could be shared by several Divisions.

My own personal treatment of fractures in horses has been confined to three cases. The first, an Olympia jumper, I purchased on the hunting field with a fracture of a metacarpus just below the knee. This mare, after treatment in slings with a wooden splint shaped to the leg, supported by canvas bandages and pitch, made a perfect recovery and hunted for several seasons subsequently. The second, a steeplechaser, broke a suffraginis into three pieces, bred a foal and recovered, apart from a large exostosis. Finally, I shot her on a racecourse; she had dislocated her neck falling at the last jump when winning easily.

The last was a half-bred filly which fractured a tibia just below the stifle joint. I fell out with my assistant for wasting his time and my client's money in "useless treatment." The last time I heard of her she had made a good recovery and was hard at work, carting on the farm.

Major Townsend said he had known the essayist for a great number of years and had come that day especially to renew the acquaintance. He had certainly listened to a most enlightening address and congratulated Major Kirk on putting his case so well. He was inclined to doubt whether 40 per cent. of the horses now destroyed could be saved, and asked how Major Kirk arrived at that figure. What fractures in the horse had the essayist treated? He thought it would be difficult to improve ambulance facilities on racecourses. It was also difficult to make a quick diagnosis on the course or hunting field. He had been very impressed with and stressed the value of X-rays in diagnosis, mentioning in one case of a fractured os suffraginis in a horse the terrific pain evinced, although the animal subsequently recovered. In his view the practitioner was rather up against it in the treatment of equine fractures.

Mr. Poles asked how one was to get an ambulance to a horse if it was in a bog or dyke in the Fens during the winter months unless it were pulled by a tractor on tracks.

Mr. Johnson wanted to know how to remove the pins after intramedullary pinning, and also what method was used on a cat or small dog.

Mr. Lake asked, in connection with the Kirschner-Ehmer splint, whether it was necessary to bore a hole first or whether the pin was sharp enough. He had had very good results with intramedullary pinning in greyhounds but an X-ray was essential. Could Major Kirk give any idea of the cost of treating a horse and also the cost of the instruments?

Mr. James: He had treated two young horses with fracture of the os suffraginis with cellona plaster and both had recovered. He had also used it with good results in calves. He asked if it were difficult to avoid transfixing a muscle when using a Kirschner-Ehmer splint and also in the case of intramedullary pinning, what happened to the pin if the subject was a young animal growing too rapidly? He certainly thought horse fractures might be treated more often than they were.

Mr. Emson: The first foal he ever saw with a fracture was treated by means of a splint of bark of the elder. He had used aluminium splints in young foals and calves and also calico bandage and tar.

Mr. Eaton: He used cellona in cattle fractures below the knee. If it were possible to hospitalise cases of fracture in horses more cases might be saved. Would it be an economic proposition to use modern methods of fracture treatment in commercial cattle?

*The Reply*

Major Kirk: His thanks were due to Mr. Smythe for his painstaking opening of the discussion. He certainly dealt very leniently with him, as he had expected Mr. Smythe to put forward apparently insurmountable difficulties. He did suggest that in K.-E. pinning the pins should go between the muscles and not through them. That might be the ideal but it was quite impracticable, as so many circumstances influenced the position of pin insertion, apart from the impossibility of ascertaining the muscle boundaries. Mr. Smythe asked, why go to the trouble of pinning? That was a question he knew would be asked and which was dealt with in his address. He could not subscribe to the belief that a piece of elastic fastened from the hock or wrist to a cleat on the table would be of the least use in extension of a limb sufficient to overcome over-riding and effect approximation of the fractured ends. Great physical strength of the surgeon and his assistants often failed to do that. Hence the need for the Gordon extender or other similar apparatus.

Replying to Major Townsend, he thought even more than 40 per cent. might eventually make good recoveries as our experience and our organisation (in the matter of ambulance services, etc.) improved. He arrived at that figure mainly by a consideration of the many radiographs he had taken of large animals, which showed the types and positions of fractures; some obviously lending themselves to treatment, and others not. All cases must, of course, be considered on their merits. But they *should be considered* and not merely shot without a second thought as now almost invariably obtained.

As to what fractures he had treated in the horse, he said at once, none as yet by the pinning method but several by more old-fashioned and primitive methods. There were two reasons for this; first, that he had only quite recently perfected an apparatus which undoubtedly seemed equal to the job, and secondly, that there must be much more education of lay and veterinary opinion before permission could be obtained to put the method into operation. Compensation by insurance for death was one great obstacle

to progress, but underwriters were studying the question very closely and with great interest.

The difficulty mentioned of making a rapid and correct diagnosis on a racecourse or elsewhere was agreed, and that was why he emphasised the necessity of getting animals home before coming to a decision. He knew that there had been instances of valuable racehorses being shot which on *post-mortem* examination were found not to have sustained fracture. This brought him to his main plank—that of ambulance organisation. None existed at present, for he thought they would agree that no facility for the removal of injured animals was provided at any race meeting. This being so, it was a temptation to adopt the easiest way out. But it should not be so. The type of vehicle he envisaged need only be a four-wheeled trailer capable of being pulled by almost any car, and equipped with splints, dressings, hypodermics, sedatives, slings, etc. When the utility of such a vehicle was once established, it would become a universal demand by all course officials and the public would feel shocked if there was failure to make provision for an injured horse.

Mr. Poles had raised the question of a horse in a dyke in the Fens during the winter. He could hardly have cited a more complicated situation, but even so, there always had been sufficient ingenuity brought to bear to get them out. It might be by the use of a three-pole tripod with block and tackle, by that of tarpaulins, gates or hurdles, or by dragging by tractors or jeeps, or even by helicopter. Some cases could not be catered for, but that did not prevent us from dealing with the great majority of accidents which were amenable to solution.

Mr. Johnson enquired about the removal of intramedullary pins. Some people left about ¼ inch protruding, which protrusion could be grasped by "parallel-jawed" pliers. Others cut them off short and sutured the skin wound, with intent to leave them in for good. Indeed, as Mr. Johnson said, if the subject was a rapidly growing puppy, the pin might be lost anyway. The method adopted (by him at any rate) for small dogs and cats was by K.-E. pinning, using fine pins and light clamps. This answered remarkably well; and he found that any method which one habitually used and became expert at, was no doubt *the best* method.

In reply to Mr. Lake; it was unnecessary to drill holes for K.-E. pins as their trochar points were sharp enough to get through the bone. As to the cost of treating a horse, if we excluded the capital outlay, the cost would be only that of the pins, and even these could be retrieved. What one could charge a client would vary widely with the circumstances. A charge of 10 guineas might be absurdly small in one case and an impossible sum in another. His final bill for plating a bull totalled £50, which was gladly paid. This was not excessive as it entailed two or three long journeys into the country. He felt, however, we should not make the operation prohibitive in cost, or it would either be uneconomic, or be beyond the means of an owner.

The capital cost of a pinning apparatus suitable for horses and including accessories would be between £25 and £30, according to the maker.

Mr. James's questions had largely been answered in reply to other members.

Mr. Eaton wondered whether it would be an economic proposition in cattle. Major Kirk thought it certainly would, especially when one considered the increased value of cattle to-day. The cost of treatment was small once the apparatus had been acquired. The greatest expenditure was of time and plaster.

Concluding his remarks at both Cardiff and Peterborough, Major Kirk expressed his appreciation of the large attendance, and at the great interest manifested in the subject, while he thanked all present for their very kind reception.

### 1,000-MILE TREK TO SAVE CATTLE

A young Australian station-owner, five native stockmen and 45 horses have started a 1,000-mile trek from the drought-parched Northern Territory to herd 1,000 head of cattle along a dusty coastal stock-route last used by pioneers generations ago. It is a do-or-die effort to get the cattle to grass. Thousands of cattle have been immobilised in the Northern Territory by drought which has sealed off the usual stock-route—itself reclaimed from arid desert land. In the 19th century, pioneers drove their animals from Queensland west to the other side of the continent. Mr. Macfarlane set out with his helpers and "cattle mob" on April 22nd in an attempt to follow German explorer Ludwig Leichhardt's 1845 route around the Gulf of Carpentaria.—*Meat Trades Journal.*

## CLINICAL COMMUNICATION

# INTERMITTENT LUXATION OF THE PATELLAE IN A HUNTER

W. M. MITCHELL AND I. ZLOTNIK,
ROYAL (DICK) SCHOOL OF VETERINARY STUDIES,
UNIVERSITY OF EDINBURGH

In an earlier communication (Mitchell, 1949) the clinical history of and *post-mortem* findings in a hunter affected with intermittent luxation of the patellae were described, and this article is in the nature of a supplement recording further study of material obtained at the time of the *post-mortem* examination. It was stated that no pathological change was noted in sections of the spinal cord, but, as the degenerative changes in the peripheral nerves of the hind limbs were so extensive and only the sixth lumbar segment of the cord had been examined, on further consideration it was decided that a more detailed examination of the lumbar part of the cord of this horse was necessary.

This investigation has now been completed by one of us (I. Zlotnik) and the new facts disclosed may have a wider interest than in this particular case for, in the many crippling conditions of horses, degeneration of the peripheral nerves, similar to that occurring in this case of luxation of the patellae, is a common feature, and it may be that examination of the central nervous system of such cases may show similar degenerative changes in the neurones of the spinal cord which have previously escaped notice.

### CYTOLOGICAL STUDY OF THE SPINAL CORD

*Material and Methods.*—The only available material consisted of the lumbar part of the spinal cord, kept in 10 per cent. formalin since November, 1948.

From each of the six lumbar segments three pieces were selected; one was blocked in paraffin straight from the fixative after dehydration in alcohols, the second was passed through either Weigert's quick mordant or 5 per cent. potassium bichromate, the third was cut on the freezing microtome.

Sections were prepared of 5, 10, 15 and 20$\mu$ thickness, and the following staining methods were employed: 0·2 per cent. Thionin blue for Nissl granules, Harris's haematoxylin, Picro-Mallory, Heidenhein's iron haematoxylin and the techniques of Weigert-Pal and Loyez for myelin sheaths. Some of the frozen sections were stained in Sudan IV.

*Observations.*—In sections stained with Thionin blue, some of the neurones of the ventral horns appeared to have areas of various sizes deprived of Nissl substance. In these places where the Nissl granules were not present, a lightly coloured blue granular substance was visible within the cytoplasm. This material under an oil immersion lens proved to be composed of minute round granules. In material fixed in formol and stained with Picro-Mallory the neurones stained a purple colour and blue granular masses appeared inside the cell. In thick sections treated according to the techniques of Weigert-Pal or Loyez where after differentiation the neurones remained colourless, masses composed of discrete granules were observed (Fig. 1).

The best results, however, were obtained from material fixed in formol and mordanted in Weigert's quick mordant or potassium bichromate and then stained in Heidenhein's iron haematoxylin. In sections thus prepared, aggregations of black granules of various sizes were visible in the neurones. It was noted that, while in some cells the granules were round and discrete (Figs. 2 and 3), in other neurones they consisted of thick clumps of black material (Figs. 4 and 5).

Finally, to ascertain the chemical character of the granules, frozen sections were stained with Sudan IV. All the granules visible in other techniques by this method appeared to be stained red, a fact indicating their lipoid nature.

The distribution of the granules within the neurones varied from a few just on the edge of the cell to very large masses obliterating nearly completely the whole of the cytoplasm. It is worth noting that the majority of affected neurones were found in the first three lumbar regions. In no circumstances were true necrotic or any nuclear changes observed in the neurones of the spinal cord.

### Discussion

From the above observations it seems to be evident that a definite, so far unknown, change occurred within the neurones of the spinal cord. The staining reaction to Sudan IV proves that the granules are wholly or partially composed of fat or lipoid. The fact, however, that mordanting in potassium bichromate renders the substance readily stainable with iron haematoxylin and the character and distribution of the granules, would suggest the possibility that these consist of mitochondria in a peculiar state of degeneration. It is quite well known (Cowdry, 1926 ; Gough 1931 ; and Ludford, 1942) that mitochondria undergo striking changes when the cell is damaged. They aggregate, become coarse and clump together, and later they change into small droplets possessing the properties of lipoids.

As mentioned already, only some of the neurones within the ventral horns exhibited granular masses. This observation becomes more important when it is realised that in this particular horse only part of the fibres of the sciatic and femoral nerves was damaged (Mitchell, 1949).

*Acknowledgments.*—We wish to thank Mr. James Boyce for his help in the microtomical work and Mr. Richard Hood for carrying out the microphotographs.

### References

Cowdry, E. V. (1926.) *Arch. Path.* **1.** 237.
Gough, J. (1931.) *J. Path. Bact.* **34.** 423.
Ludford, R. J. (1942.) Bourne : Cytology and Cell Physiology. Oxford. p. 227.
Mitchell, W. M. (1949.) *Vet. Rec.* **61.** 352.

### R.S.P.C.A. ANNUAL MEETING

In the annual report, presented to the annual meeting of the Royal Society for the Prevention of Cruelty to Animals, held in London on Thursday of last week, it is stated that 396,948 animals had been handled by the Society in 1951, an increase of more than 6,000 over the previous year. Inspectors had investigated 31,399 complaints of cruelty leading to 939 court convictions.

Mr. W. S. Russell Thomas, Chairman of the Council of the Society, said that they wished to guide people away from cruel methods. In the case of children they did their best not to prosecute, but certain cases during the past year had been so bad that they had had no alternative but to bring them before the juvenile courts, and 85 children had been convicted. He thought that this cruelty among children was due to the influence of gangster films to which they were consistently going; probably to the absence of attendance at Sunday schools; to the breaking up of homes, and to a curious psychological state in which we thought children could be talked into behaving respectably. He believed that many of the American "comics" depicting gangsterism with all its evil effects were also to blame.

* * * * *

### Weekly Wisdom

*Modesty does not consist in pretending to underrate one's own attainments. It consists in respecting the attainments of other people.*—Jean de Benifontaine.

## ABSTRACTS

### Suspected Tetrachlorethylene Poisoning of Sheep*

Three cases of losses among sheep following dosing with tetrachlorethylene are recorded ; 4 to 5 ml. of pure tetrachlorethylene were given in two instances, while in the third the tetrachlorethylene was mixed with equal parts of mineral oil. In all cases, however, the dosing was preceded by 15 to 20 ml. of 5 per cent. copper sulphate. Eighteen and 11 sheep died out of 420 and 410 dosed, and nine out of an unrecorded number dosed. The losses, which occurred in winter or early spring, among young Merino sheep, took place one to two days following dosing. *Post-mortem* examination revealed a severe congestion of the abomasum and intestines, subcutaneous haemorrhages, and haemorrhages in the myocardium, excess peritoneal and pleural fluid, and an enlarged fatty liver.

The author draws attention to the similarity between the *post-mortem* lesions observed in tetrachlorethylene and carbon tetrachloride poisoning. He also records that losses occurred in flocks which had previously received tetrachlorethylene, without ill effect, and that there was no evidence of overdosage. He advises that the precautions used in the administration of carbon tetrachloride be adopted for tetrachlorethylene.

D. W. J.

* **Suspected Tetrachlorethylene Poisoning of Sheep** Southcott, W. H. (1951.) *Austr. vet. J.* June number, page 130.

* * * * *

### Chemical Caponisation*

This article reviews the information at present available on the use of stilboestrol and associated drugs to accelerate the fattening of cockerels. Caponisation and its historical background is described. In essence, chemical caponisation is the treatment of cockerels with oestrogens to restrict their normal sexual development. The oestrogens have only a temporary effect, and unless treatment is maintained the birds will return to the sexually active state. If treatment is commenced at six to seven weeks the development of the secondary sexual characteristics is inhibited, later treatment causes shrinking of the comb and wattles and the cessation of the male call.

There are several synthetic oestrogens now available for treatment, such as stilboestrol, hexoestrol and dianisyl hexene. They can be given subcutaneously by implantation of pellets, intramuscularly, or by oral administration in the food. Pellet implantation is the method most commonly employed, because it is both simple and cheap. An implantation of 15 mg. remains effective for six to eight weeks. Of the synthetic oestrogens, hexoestrol, weight for weight, appears to be more effective and active for a longer period than stilboestrol.

A warning is given that oestrogenic substances are effective on all species, including man, and they therefore should be kept secure when not in use. When the oestrogens are given by implantation it is important to inject them high in the neck so that any residue is discarded when the carcase is dressed.

G. C. B.

* **Chemical Caponisation.** Allcroft, W. M. (1951.) *J. Min. Agric.* **58.** No. 8.

## VICTORIA VETERINARY BENEVOLENT FUND

### MEETING OF COUNCIL

A meeting of the Council of the Victoria Veterinary Benevolent Fund was held at No. 10, Red Lion Square, London, W.C.1, on Friday, April 4th, 1952, when the following members were present: Mr. Horace Bell, Professor J. B. Buxton, Mr. H. W. Dawes, Major J. J. Dunlop, Professors R. E. Glover and J. McCunn, Captain T. M. Mitchell, Professors W. M. Mitchell, C. W. Ottaway and L. P. Pugh, Mr. Arnold Spicer and Professor G. H. Wooldridge. Mr. C. W. Francis, Secretary, was in attendance.

*Chairman.*—In the absence of the President (Lieut.-Colonel P. J. Simpson) through continued illness, Professor J. B. Buxton, Vice-President, was unanimously appointed to the chair.

After thanking the meeting for his election, Professor J. B. Buxton stated that he was in constant touch with Mrs. Simpson, and the latest news of the President was that it was very unlikely that they would see him there again.

This sad news was received by the members with the deepest regret.

*Minutes.*—The minutes of the previous meeting, held on January 9th, 1952, having been published in *The Veterinary Record*, were taken as read and signed as correct.

*Mr. H. W. Steele-Bodger.*—The Secretary reported the death of Mr. H. W. Steele-Bodger, Member of Council since 1941, which took place on January 11th, 1952.

The Chairman, in referring to the sad passing of Mr. H. W. Steele-Bodger, moved "That the sincere condolences of the Council be conveyed to Mrs. Steele-Bodger and family in the great bereavement which they have suffered."

The motion was carried in silence, all members standing.

*Apologies for Absence.*—Apologies for absence were received from the following: Mr. E. P. Barrett, Mrs. D. I. Glover, Captains W. R. McKinna and J. W. Procter, Mrs. E. Wooldridge, Dr. W. R. Wooldridge, Captains Wm. Watt and A. Whicher, and Mrs. M. E. Wright (President of the Ladies' Guild).

*Correspondence.*—(i) A letter from Mrs. E. Wooldridge tendering her resignation as an Elected Member of Council was read.

It was resolved "That the resignation of Mrs. E. Wooldridge be received with much regret and that a letter be sent thanking her for the great help which she has rendered to the Fund during her services on the Council."

(ii) The Secretary announced that he had received information to the effect that Professor C. W. Ottaway, PH.D., F.R.C.V.S., had been appointed to serve on the Council to represent the Mid-West Division in the place of Mr. Esmond Brown, M.R.C.V.S., resigned.

Officers. Having regard to the serious illness of the President, and to the wish of Mr. Arnold Spicer, F.R.C.V.S., that he did not desire to offer himself for re-election as Hon. Secretary, which news the Council received with much regret, it was decided to make the following nominations to the annual general meeting:—

*President-Elect.*—Professor J. B. Buxton, M.A., F.R.C.V.S., D.V.H.

*Hon. Secretary.*—Major J. J. Dunlop, M.C., M.R.C.V.S., D.V.S.M.

*Hon. Treasurer.*—Mr. H. W. Dawes, C.B.E., F.R.C.V.S.

Investments. The Secretary reported the following investment transactions which the Treasurer had authorised during the quarter:—

*Hunting Fund.*—Balance standing in this account as on December 31st, 1951, amounting to £367 11s. 10d., invested in the purchase of £373 9s. 11d. 4 per cent. Funding Stock, 1960/90 at 98⅛.

*Wortley Axe Fund.*—£151 15s. 2d. accumulated interest for the year ending December 31st, 1951, invested in the purchase of £161 2s. 8d. 2½ per cent. Funding Stock, 1951/61, at 93½.

The action of the Treasurer was approved.

#### Accountant's Report

The report of the Accountant, as under, was read and approved:—

The following special subscriptions and donations have been received since the previous meeting:—

*Subscriptions*

| | £ s. d. | £ s. d. |
|---|---|---|
| Veterinary Medical Association of Ireland, 1951 ... ... ... | 10 10 0 | |
| Ditto, 1952 ... ... ... ... | 15 15 0 | |
| "A. W." ... ... ... ... | 0 10 6 | |
| | | 26 15 6 |

*Donations*

*Collecting Boxes*

| | | |
|---|---|---|
| Baxter, A. J. ... ... ... ... | 4 4 0 | |
| Central Veterinary Society (three meetings) ... ... ... ... | 6 5 0 | |
| East Midland Division, B.V.A. ... | 2 18 7 | |
| Scottish Branch, B.V.A. ... ... | 4 5 6 | |
| Scottish Metropolitan Division, B.V.A. ... ... ... ... | 3 0 7 | |
| Veterinary Investigation Officers' Conference ... ... ... ... | 4 5 7 | |
| | | 24 19 3 |
| "In memory of Mr. H. W. Steele-Bodger" (donations in lieu of flowers) ... ... ... ... | 23 12 0 | |
| Eastern Counties Veterinary Society | 10 0 0 | |
| G. N. Gould (Quarterly R.S.P.C.A. honorarium made over the Fund) (two payments) ... ... ... | 25 0 0 | |
| East Midland Division, B.V.A. (proceeds of raffle) ... ... ... | 11 3 0 | |
| Kenya Veterinary Association— | | |
| 1951 ... ... ... ... | 10 0 0 | |
| 1952 ... ... ... ... | 10 0 0 | |
| James, Mrs. Lily G. ... ... ... | 1 1 0 | |
| Midland Counties Veterinary Medical Association ... ... ... ... | 5 5 0 | |
| National Greyhound Racing Club ... | 10 0 0 | |
| Renton, C. P. (proceeds of dance organised by members on behalf of the Fund) ... ... ... ... | 21 6 6 | |
| Scottish Metropolitan Division, B.V.A. | 15 18 6 | |
| Spicer, Arnold ... ... ... | 5 5 0 | |
| Yorkshire Veterinary Medical Association ... ... ... ... | 5 5 0 | |
| | | 153 16 0 |
| Total ... ... | | £205 10 9 |

It was resolved "That the cordial thanks of the Council be conveyed to the respective donors."

CASES

No. 270. Widow; aged 61. The Secretary informed the meeting that as this case was due for review he had asked this recipient to submit a renewal application. The application included information that her son, aged 26, qualified in Medicine last September and was now serving with the Canadian Army, and that he was paying the rent of her flat in Dublin. As her income, including the Fund's grant of £1, was £1 14s. 0d. per week, it was decided to continue the grant.

No. 276. F.R.C.V.S. The Secretary reported that this recipient had died on March 5th last. The question of making a grant to the widow was deferred until the receipt of further information, the Executive Committee to be given power to act.

No. 282. M.R.C.V.S.; aged 55. Unemployed. Executive Committee made a grant of £2 per week for five weeks.

No. 283. M.R.C.V.S.; aged 61. No regular employment since September, 1951. Applied for small loan, and in the circumstances Secretary was authorised to make a special grant of £3 3s. 0d.

It was resolved "That the action taken in the above cases (Numbers 282 and 283) be confirmed."

No. 284. M.R.C.V.S.; aged 70. Accident five years ago compelled him to give up practice. Receiving £2 8s. 6d. per week from Public Assistance Board; now applying for help to buy clothing.

The Secretary was instructed as to the action to be taken in this case.

No. 264. Daughter of late member; aged 63. Further consideration was given to this case as a member of Council had been approached in regard to the amount of the present grant of £1 per week, but it was decided that no alteration be made in the amount.

*Draft Annual Report and Financial Statement.*—The draft Annual Report and Statement of Accounts was submitted and approved for issue to the members prior to the annual general meeting.

*Date of Next Meeting.*—The date of the next Council meeting, which must be convened within one month of the annual general meeting, called for June 4th, 1952, was left to the Executive Committee to arrange.

M.M.B. INFERTILITY RESEARCH SCHEME

Speaking at the annual meeting of the Milk Marketing Board's Cattle Breeding Centre at Chippenham, Wilts, Mr. A. Jack, the Veterinary Officer, said that Chippenham was one of three centres selected for a pilot scheme of research into the causes of infertility in cows. A number of herds served by the centre had poor breeding records, and it seemed that when these herds had infertility trouble the owners tended to switch to A.I. During the winter, 40 large herds within a seven-mile radius of Chippenham which had been using bulls and had experienced infertility trouble had turned to the A.I. service. Analyses were made at the centre from breeding records. Of 700 herds with 10 cows or more, 600 had good results, but 100 had really poor results—less than half the cows holding to the first insemination.

During the last year, there had been discussions with the British Veterinary Association, and three centres had been selected to see whether anything could be done to improve fertility in herds. It would be a very important aspect of artificial insemination that the infertility problem was being tackled on a fairly large scale, and according to the results of the pilot scheme, a scheme would probably be put into force nationally.

## WARNING

### Jury Service

We have been requested to give prominence to the following intimation:—

*Any person on the Register of veterinary surgeons or the Supplementary Veterinary Register will be liable for jury service, unless he or she takes the necessary steps to observe the law. Exemption is not given automatically by the Veterinary Surgeons Act, 1948. It is necessary for the person concerned to make certain each year that the jury mark has not been placed against his or her name in the electoral register. The Registrar, the Royal College of Veterinary Surgeons, is constantly being consulted by members who have been summoned for jury service and who have not taken the trouble to secure their exemption. The warning has been given to the profession in every manner possible, and once a summons for jury service has been served the only way to avoid service is by getting the Under Sheriff concerned to exercise his discretion and release the person concerned. However, he is under no obligation to do so.*

### Advice

*1. If you have not taken the necessary action, write immediately to the local authority responsible for compilation of the electoral roll on which your name stands. State that you are a practising veterinary surgeon and that by section 24 of the Veterinary Surgeons Act, 1948, you are entitled to have the jury mark removed from your name in the electoral list. Ask for confirmation that this has been done and if possible that it will not be placed against your name in future until further notice.*

*As an additional precaution you should note that each year, about November 20th, electors' lists are published and persons qualified and liable to serve as jurors are marked with the letter J on such lists. Any person whose name is marked with the letter J and who, like a veterinary surgeon, is exempted from jury service as until January 25th, must claim exemption and have the mark removed from the name.*

*2. If you have neglected to take this reasonable precaution and you are summoned for jury service, write to the Registrar, R.C.V.S., giving full particulars of the Under Sheriff concerned and his address and the date, time, and place for which you have been summoned. The Registrar will do then what he can on your behalf. If he fails then you may be away from your practice for an indefinite number of days.*

ADDRESSES OF DISEASE-INFECTED PREMISES

(*Continued from page 335.*)

FOOT-AND-MOUTH DISEASE (*Continued*):—

*Isle of Wight.*—Vittle Field Farm, Newport (May 24th); Dingler's Farm, Newport (May 25th).

*Leics.*—Sedgeley's Meadow, Lutterworth Road, Ullesthorpe (May 25th).

*Salop.*—Mill Meadows, Adderley, Market Drayton (May 25th).

*Staffs.*—Sandyford Farm, Swynnerton, Stone (May 23rd); The Spot Farm, Hilderstone, Stone, and Sheephouse Farm, Leek (May 26th).

*Sussex (E.).*—Magreed Farm, Broad Oak; Lower Buildings Dairy, Priest Lanes, Polegate; Honey Crock and Glen Lea, Cannon Bridge, Westham, Pevensey (May 24th); Black Down Farm, Broad Oak; Miller's Farm, Battle; Park Farm, Laughton, Lewes; Little Ashdown Farm, Hailsham (May 26th).

# QUESTIONS IN PARLIAMENT

### Foot-and-Mouth Disease (Slaughter Policy)

Mr. Hamilton (May 19th) asked the Minister of Food how much extra meat is now available to his Department as a direct result of the slaughter policy consequent on the widespread outbreak of foot-and-mouth disease; and what will be the resultant increase in the domestic meat ration.

Major Lloyd George: None, Sir. The extra meat resulting from the slaughter of livestock which has been in contact with infected animals is outweighed by the temporary hold-up in normal slaughterings caused by the restrictions on the movement of livestock.

Mr. Hamilton: Is it not the case that meat which would normally come here from New Zealand is being diverted to Canada and that foot-and-mouth infected meat from Canada, which the United States will not eat, is being sent here?

Major Lloyd George: The hon. Gentleman is quite wrong. No infected meat is being sent here from Canada or anywhere else. The diversion of meat from New Zealand to Canada is to help Canada out of a difficulty. We are getting non-infected prime meat from Canada in return.

Mr. Hamilton: Why is meat from Canada now being refused by the United States?

Major Lloyd George: The United States has a totally different rule from the one we have here. In this country we use for ordinary feeding purposes areas which are not infected, but when there is an infection in Canada, no matter where it is, the whole of the Canadian border is closed to the United States. The only meat we are getting is from a non-infected area.

. . . . . .

Major Anstruther-Gray (May 22nd) asked the Minister of Agriculture whether he will make a statement with regard to the holding of agricultural shows.

Mr. Hurd asked the Minister of Agriculture what advice he has given to show societies on the risks involved in gathering cattle, sheep, pigs and goats for exhibition while foot-and-mouth disease is still prevalent.

Sir T. Dugdale: I see no need for a general prohibition of the holding of agricultural shows, as there is little risk of foot-and-mouth disease being spread at shows exhibiting local stock in areas where there has been no outbreak. The major agricultural shows are in a different category, since they involve the congregating not only of valuable animals from all parts of Great Britain, but also of farmers and others who can be mechanical carriers of the disease.

No major shows are due to be held in the next two or three weeks, however, except the Bath and West, where the appropriate classes have already been cancelled because of infected area restrictions. If the promoters of other major shows will get in touch with my department I will arrange for them to be given advice in the light of the most recent developments.

Major Anstruther-Gray: May we take it from that reply that the matter is constantly under review?

Sir T. Dugdale: Yes, Sir, daily.

Mr. Hurd: Will the Minister see that his technical officers give definite advice to the show organisers in good time so that no doubt remains in the minds of farmers and exhibitors?

Sir T. Dugdale: Yes, Sir. The advice tendered in answer to any enquiries will be absolutely definite.

Mr. Hurd (May 22nd) asked the Minister of Agriculture if the recent standstill order enabled his veterinary officers to trace all livestock which had been in contact at markets with animals infected with foot-and-mouth disease; if a reliable blood test has been evolved to discover potential carriers of the disease; and if he is satisfied that there will be no further spread of infection from these sources.

Sir T. Dugdale: All livestock which may have been in contact with infection at markets from April 24th to May 1st have been traced and examined. I understand that there is no reliable blood test which would enable the disease to be diagnosed in animals showing no symptoms or at an early stage of infection. Normally, there is no need of a blood test, as livestock in Great Britain are so susceptible that the disease very soon becomes evident in animals which are infected. Young calves may occasionally fail to show characteristic symptoms. This did unfortunately happen with the calves which recently caused outbreaks of foot-and-mouth disease in Scotland. I am satisfied that no further spread of infection will arise from the markets held in the period mentioned.

Mr. Hurd: Could not my right hon. and gallant Friend tell us what happens when these contact animals which have been in touch with infection are identified, and the farm is known? Is that farm completely closed and isolated, and are hikers and others prevented from crossing that land, because there is evidence that some further outbreaks have arisen from mechanical means?

Sir T. Dugdale: This is a very complicated subject, and I should prefer not to commit myself to the House to answer these difficult questions. Every aspect of the matter is under examination.

. . . . . .

Imported Bone Meal and Flour (Infection)

Mr. G. Williams asked the Minister of Agriculture what evidence he has as to the possibility that bone meal and flour imported into this country can carry infection; and what regulations have been made concerning importation.

The Minister of Agriculture (Major Sir Thomas Dugdale): Samples of imported bone meal and flour have been analysed in the past, and some have been found to contain anthrax, but there is no evidence that these particular products have been responsible for the introduction of other diseases. Bone meal and flour are covered by the Importation of Carcases (Prohibition) Order, which regulates their importation from certain European countries, but their importation is allowed under licence.

Mr. Williams: Is the Minister aware that there is some concern about the possibility of fowl pest being brought in by this means, and have his scientists taken special care to go into this question?

Sir T. Dugdale: I will certainly draw the attention of my technical advisers to this point. I am advised that it is not considered that there is any danger.

Mr. Thornton-Kemsley: Will my right hon. and gallant Friend see that, wherever possible, wheat is imported into this country whole, so that we may enjoy the benefits of its by-products, instead of being imported as flour?

Sir T. Dugdale: That is another question.

. . . . . .

Slaughterhouse, Wickham Market

Colonel J. H. Harrison (May 19th) asked the Minister of Food why no cattle arrived at Mr. Clark's slaughterhouse, Wickham Market, Suffolk, on May 12th; and why Mr. Clark received no notification they were not coming, after having his slaughterhouse used the previous week.

Major Lloyd George: Mr. Clark's premises and services were used as a temporary arrangement on May 5th, 6th and 7th, but as the restrictions on the movements of livestock in the district were removed on May 4th Mr. Clark was told on May 5th that his premises and services would not be required after Wednesday, May 7th.

Colonel Harrison: Is my right hon. and gallant Friend aware that this constituent of mine spent over £700 on this slaughterhouse on the instructions of the Ministry of Food; that this was the first time he was to receive any animals, and that he had no notification at all that he was not going to get them on the 12th? I visited his premises when he was expecting them, and in common courtesy he might have been told that they were not coming. Will my right hon. and gallant Friend consider opening more small slaughterhouses so that people in East Suffolk will get a better supply of meat?

Major Lloyd George: My information is not the same as my hon. and gallant Friend's, because Mr. Clark in a telephone conversation with our headquarters said that he fully understood that his services would not be required after May 7th.

# NOTES AND NEWS

### Diary of Events

June 4th.—109th Annual General Meeting of the Royal College of Veterinary Surgeons, at 10, Red Lion Square, London, W.C.1, 12 noon.

June 4th.—Annual General Meeting of the Victoria Veterinary Benevolent Fund, at 10, Red Lion Square, London, W.C.1,—immediately following the above.

June 4th.—Meetings of Editorial Committee, B.V.A.: Executive 2 p.m.; Main 3.30 p.m. (N.B.—These meetings have been brought forward from the second to the first Wednesday in the month.)

June 4th.—Annual General Meeting of the Southern Counties Division, B.V.A., at Bournemouth (Grand Hotel), 6 p.m.

June 4th to 6th.—Meetings of Committees and Council, R.C.V.S., at 10, Red Lion Square, London, W.C.1.

June 5th.—V.V.B.F. Ladies' Guild Committee Meeting, at No. 9, Red Lion Square, London, W.C.1, 2.30 p.m.

June 11th.—Meeting of the R.A.V.C. Division of the B.V.A., at the R.A.V.C. Laboratory, Thornhill, Aldershot, 3 p.m.

June 11th.—Joint Meeting of the South-Eastern and Sussex Divisions, B.V.A., at the Wellcome Veterinary Research Station, Frant, Tunbridge Wells, 2.30 p.m.

June 11th.—Meeting of the Scottish Metropolitan Division, B.V.A., at Dunolane (Dunblane Hydro Hotel), 2 p.m.

June 12th.—Annual Meeting of the R.A.V.C. Golfing Society, at the North Hants G.C., Fleet.

June 13th.—Annual General Meeting of the Lincolnshire and District Division, B.V.A., at Grantham (The George Hotel), 2.15 p.m.

June 13th.—R.A.V.C. Officers' Club Annual Dinner, at Grosvenor House, London.

June 25th.—B.V.A. Meetings at 36, Gordon Square, London, W.C.1—Grassland Conference Sub-committee, 10.45 a.m.; Technical Development Committee, 2 p.m.

**Sept. 8th—13th.—Seventieth Annual General Meeting and Congress of the British Veterinary Association, at Harrogate.**

R.C.V.S. Examinations

June 5th/6th.—D.V.S.M. Written Examinations at Edinburgh.

June 26th/27th.—R.C.V.S. Membership Written Examinations.

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## PERSONAL

*Births.*—Greenwood.—On May 11th, 1952, to Margery (*née* Blaber), wife of E. R. Greenwood, M.R.C.V.S., of Rothley, Leics, a second son—Nicholas John.

Holton.—On May 19th, 1952, at Rayleigh, Essex, to Vera, wife of John Holton, M.R.C.V.S.—a son.

Stead.—On May 15th, 1952, at 27, Beech Grove, Whitby, Yorks, to Peggie, wife of Peter Y. Stead, D.F.C., B.SC., M.R.C.V.S., a son—Christopher David.

. . . .

*Forthcoming Marriages.*—Darneley—Jennings.—The engagement is announced between Alistair John, son of the late Mr. Oswald H. B. Darneley and Mrs. Darneley, Dale-End, Bradwell, Sheffield, and Anne Hazel Jennings, B.SC., M.R.C.V.S., younger daughter of Mr. and Mrs. Arthur Tildesley Jennings, The Warren, Brocton, Stafford.

Kay—Beardmore.—The engagement is announced between Ronald Norman Kay, B.SC., M.R.C.V.S., youngest son of Robert Kay and the late Elizabeth Kay, of Maryfield, Bonnyrigg, Midlothian, and Patricia Elaine, younger daughter of Mr. and Mrs. J. C. Beardmore, of Oaklands, Blacon, Chester.

. . . .

*Marriage.*—Crooks—Broompton.—On May 10th, 1952, at St. Mary's Church, Wansford, Driffield, E. Yorks, John Leslie Crooks, M.R.C.V.S., to Dorothy Heather Broompton.

* * * * *

## THE SOCIETY FOR GENERAL MICROBIOLOGY

The annual general meeting of the Society was held at Oxford on April 15th, 1952, and was followed on April 16th and 17th by a successful symposium on "The Nature of Virus Multiplication." These meetings were attended by over 300 microbiologists, and the papers and discussion will be published in book form under the editorship of Sir Paul Fildes, F.R.S., and Dr. W. E. van Heyningen.

The following are the officers for 1952-53: President, Mr. H. J. Bunker; Hon. Secretaries, Dr. J. G. Davis (general) and Dr. E. F. Gale (meetings); Hon. Treasurer, Dr. R. Lovell; Hon. Editors of the journal of the Society, Professor B. C. J. G. Knight and Mr. A. F. B. Standfast.

Information about the Society may be obtained from Dr. J. G. Davis, 52, London Road, Reading.

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## R.C.V.S. ANIMAL MANAGEMENT EXAMINATION, MAY, 1952

List of Successful Candidates

(*Continued from page* 300)

London

Baxter, C. J.
Blaxland, D. R.
Breese, J. L.
Cameron, R. S. (C)
Carter, P. A.
Coryn, H. D. (C)
De Marigny, M. D. C. D.
Derbyshire, J. B. (C)
Dier, B. G. F.
Down, B. C.
Evans, E. D.
Gray, C. G (C)
Hudson, J. R.
Hyde, Miss K. B. (C)
Kerry, J. B. (C)
Lifton, J. M.
McCracken, R. W.
Markham, Keith
Melluish, H. K.
Miller, J. A.
Morath, D. E. (C)
Owen, Geoffrey
Parkinson, K. D.
Peters, J. B.
Prole, J. H. B.
Rawson-Shaw, Miss E. A.
Rutherford, L. H.
Shrimpton, D. F.
Strang, R. D. (C)
Taylor, E. L. G. (C)
Tedd, B. G.
Thorp, A. C. B.
Valentine, E. P. (C)
Wall, L. J. T.
Ward, Anthony (C)
Williamson, D. C.
Wilson, Miss E. D.
Wright, M. A.

Dublin

Boyd, J. R.
Brownell, T. A.
Carroll, Miss U. P. J.
Cawdery, M. J.
Clarke, J. P.
Conroy, P. J.
Crowley, J. P.
Daly, D. G.
Eastwood, P. J.
English, R. G. (C)
Evans, J. A.
Harris, Miss M. D. (C)
Harris, R. E.
Huey, J. A.
Kent, D. K.
McManus, Dermot
Nunn, W. R.
O'Brien, J. P.
O'Neill, T. J. (C)
O'Neill, W. J.
O'Connor, S. P.
Poole, D. B.
Roche, J. V.
Smith, K. J.
Stuart, N. C.
Wilson, D. J.

(C) denotes credit.

(*This concludes the examination in Animal Management*)

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## R.C.V.S. PHARMACOLOGY, ETC., EXAMINATION, MAY, 1952

List of Successful Candidates

(*Continued from page* 312)

Dublin

Abrahamson, David
Ballesty, J. J.
Broderick, T. I.
Daly, Edward
Dunne, L. G.
Fenlon, P. J.
Flavin, M. J.
Foley, J. E.
Goold, M. C.
Gordon, James
Guerin, W. A.
Guven, M. N.
Hally, W. P.
Hannan, John
Harbord, R. S. (C)
Henehan, M. D.
Jameson, J. G.
Keane, P. A.
Kent, Martin
Liffey, P. K.
Littlewort, M. C.
McDonald, P. J.
O'Brien, M. W.
Rhatigan, Patrick
Smyth, L. J.
Strickland, K. L.
Tuite, Michael
Twomey, Thomas
Tynan, A. R.
Walsh, M. C.

(C) denotes credit.

(*This concludes the examination in Pharmacology*)

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### Foot-and-Mouth Disease

Shortly after the publication of our last issue the Ministry of Agriculture announced the confirmation of further outbreaks of foot-and-mouth disease in the Isle of Wight, Kent, Northamptonshire, Staffordshire, Sussex and Wigtownshire. Over the week-end 14 outbreaks were confirmed in these counties, also at Kedleston Park, near Derby, and the subsequent occurrence of further outbreaks has brought the mid-week total, since November 14th, to 368, affecting 21,875 cattle, 13,975 sheep, 8,091 pigs and 26 goats.

The Deputy Ranger at Windsor has announced that because of the continued outbreaks of foot-and-mouth disease the Commissioners of Crown Lands had decided in the public interest to close that part of Windsor Great Park between the double gates in the Long Walk at the northern end and the Cumberland Gate, in the centre of the park, until further notice. The remainder of the park, including the gardens and the Virginia Water area, will remain open to visitors.

The Council of the Three Counties Agricultural Society has agreed to hold its show at Hindlip Park, Worcester, on June 10th, 11th and 12th, including the sections for cattle, sheep and pigs. The Council states that, in the event of any further standstill order being imposed or an outbreak of foot-and-mouth disease occurring in the vicinity of the show-yard, the show will proceed without cloven-hoofed exhibits.

## ADDRESSES OF DISEASE-INFECTED PREMISES

**The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.**

ANTHRAX:

*Angus.*—Meikle Coull Farm, Tannadice, Forfar (May 16th).
*Cheshire.*—Sandlow Green Farm, Holmes Chapel, Crewe (May 17th); Bagmere Farm, Brereton, Sandbach (May 22nd).
*Cornwall.*—Landue Barton Farm, Lezant, Launceston (May 19th).
*Devonshire.*—Grilstone Farm, North Molton (May 22nd).
*Kent.*—Sewage Farm, Edenbridge, Mill Farm, Bodsham, Elmsted, nr. Ashford (May 19th).
*Lancs.*—Parkside Farm, Chadderton, Oldham (May 17th).
*Leics.*—Folville House Farm, Ashby Folville, Melton Mowbray (May 21st); Oak Farm, Garlands Lane, Barlestone, Nuneaton (May 22nd).
*Somersetshire.*—Islington Farm, Wells; Manor Farm, Cole, Bruton, Bath (May 16th).
*Wilts.*—Wicksted Farm, Highworth, Swindon (May 17th).

FOOT-AND-MOUTH DISEASE:

*Berks.*—Church Farm, West Hanney, Wantage (May 21st).
*Ches.*—Hill Top Farm, Darnhall, Winsford (May 16th); Wood Orchard Farm, Audlem, Crewe; Ivy Cottage, Cholmondeston, Nantwich (May 17th); Bank Farm, Hurleston, Nantwich (May 18th); Kinsey Heath Farm, Audlem, Crewe (May 19th); Big Field, Cholmondeston Road, Cholmondeston, Winsford (May 20th); Manor Farm, Church Minshull, Nantwich (May 21st).
*Derbyshire.*—Powbridge Fields Farm, Mackworth (May 18th); The Hollies Farm, Allestree, Derby (May 19th); Gravel Pit Field, Allestree, Derby (May 20th).
*Hants.*—Padstow Farm, Fordingbridge (May 16th); Hill Farm and Beckton Farm, Fordingbridge (May 21st); Ashburn, Fordingbridge (May 22nd).
*Isle of Wight.*—Cooks Farm, Carisbrooke (May 19th).
*Kent.*—Cole Farm, Paddlesworth, Folkestone (May 20th); Badfell Park Farm, Matfield, Tonbridge (May 22nd).
*Northants.*—Abingdon Mill Farm, Billing Road East, Northampton (May 22nd).
*Salop.*—Church Farm, and The Lees, Adderley, Market Drayton (May 16th); Bank Farm, Bearstone, Willough Bridge Lodge, Pipegate, Market Drayton (May 17th); Woodhouse Farm, Wirswall, Whitchurch; Vicarage Field, Adderley, Market Drayton (May 19th); Home Farm, Adderley, Market Drayton (May 20th); Sutton Farm, Market Drayton (May 22nd).
*Staffs.*—Wood Farm, Leigh; Hurden Hall Farm, Barlaston; Longfield Farm, Blythebridge, Stoke-on-Trent (May 16th); Martins Bank Fields, Oulton Heath, Stone (May 17th); Rushlade Farm, and Marley Hollows Farm, Hilderstone, Stone (May 18th); High Elms Farm, Hilderstone, Stone (May 19th); "A" Holding, Rough Cote Lane, Coverswall, Stoke-on-Trent (May 20th); Barlaston Down, Barlaston (May 21st); Spot Grange, Stone (May 21st); Manor House, Moddershall, Stone; New Buildings, Hilderstone, Stone (May 22nd); Knen Hall Farm, Moddershall, Stone (May 23rd).
*Sussex (E.).*—Vine Farm, Holland, Lewes (May 16th); Terrible Down Farm, Holland, Lewes (May 20th); Priestshawes, Upper Buildings, Polegate; Bentley Farm, Holland, Lewes (May 22nd).
*Sussex (W.).*—Lower Lodge Farm, Fernhurst, Haslemere (May 20th).
*Warwicks.*—Lower Green, Woolscott, Rugby (May 18th); Meadow, Alveston, Stratford-on-Avon (May 19th); Grange Hill Farm, Withybrook, Coventry; River Meadows, Alveston, Stratford-on-Avon (May 20th); Top New Zealand Farm, Stockton, Rugby (May 21st).
*Wigtownshire.*—Carslae, Newton Stewart, Wigtown (May 17th); West Kirkland Farm, nr. Newton Stewart (May 19th); Monument Fields, Monkhills, Wigtown (May 20th); Little Broadfield, Wigtown (May 22nd).

FOWL PEST:

*Kent.*—Mill House, Bredhurst, Chatham (May 20th); Woodbine Poultry Farm, Cross-in-Hand, Tunbridge Wells (May 22nd).
*Norfolk.*—Post Office, North Tuddenham, Dereham (May 19th).

SWINE FEVER:

*Bucks.*—The Caravan, Larkins Orchard, Amersham (May 20th).
*Cumberland.*—Ellersleigh Farm, Workington (May 20th).
*Derby.*—Highfields, Aston Lane, Chellaston (May 19th).
*Glos.*—"Lea Field," Wigpool, Drybrook (May 19th); Sun Green, Bream, nr. Lydney (May 20th); Staunton Road Holding, Coleford (May 22nd); Ashfield House, Ruardean Hill, Drybrook (May 24th).
*Herefordshire.*—Vincent House, Bagley Head, Dilwyn (May 19th); Stream Cottage, Staunton-on-Arrow, Leominster (May 20th); Danilo Farm, Coughton, Ross-on-Wye (May 21st); Whitehall, Madley, Hereford (May 22nd).
*Herts.*—Model Farm, Langleybury; Shangri la, Bucknall Lane, Garston, Watford (May 19th); Sutes Farm, High Cross, Ware (May 23rd).
*Lancs.*—Drumacre Hall Farm, Longton, Preston (May 22nd).
*Leics.*—Forest Road Allotments, Leicester (May 19th).
*Lincs (Holland).*—West Holme, Boston Road, Swineshead (May 20th).
*Lincs (Kesteven).*—Galley Hill Allotments, Sleaford (May 24th).
*Middx.*—Hendon Park Farm, Highwood Hill, Mill Hill, N.W.7.
*Notts.*—248, Southwell Road West, Mansfield (May 21st).
*Salop.*—Heath Farm, Clee Hill, Ludlow (May 21st); Newhouse Farm, Norbury, Bishops Castle (May 22nd).
*Staffs.*—18, Spring Road, Longton, Stoke-on-Trent (May 20th).
*Yorks (W.R.).*—C.W.S. Piggeries, Withgill, Mitton (May 19th).

### SUPPLEMENTARY LIST

The following additional items, in respect of later outbreaks of foot-and-mouth disease, have been received:—
*Cheshire.*—Lea Green Farm and No. 3, C.C. Holding, Nantwich; Field's Farm, Winsford (May 24th); Hill Top Farm, Warmington, Sandbach (May 25th).
*Isle of Wight.*—Forest Farm, Newport (May 23rd).

(*Continued on page* 332.)

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## LIVESTOCK EXPORT GROUP

The report of the Committee, presented to the annual general meeting of the Group held at The Royal Empire Society on Monday, May 19th, records that, once again, a general meeting of members was held at Perth, when Mr. J. N. Ritchie, now Chief Veterinary Officer of the Ministry of Agriculture and Fisheries, addressed the meeting on the subject of animal health matters relating to the export of stock. The quarterly report has been circulated regularly, keeping members abreast of events and reporting on the activities of the Committee during the course of the year, and it is felt correct to say that the Group has been given wider publicity in the last 12 months than ever before.

The total membership is 138, a net increase of 17, but "despite a membership drive, the position is still far from satisfactory. Many breeders who export stock regularly were approached, but the response was, to say the least, very poor. This apathy is truly difficult to understand when one considers the benefit which they derive through the actions of the Group, and it is appropriate to emphasise that the members of its Committees give of their time and services voluntarily. Every person breeding stock for export should be a member of the Group with the knowledge and satisfaction that his interests are constantly being watched and protected. . . . There is no other organisation comparable to the Group which devotes its affairs solely to the promotion of the export of pedigree animals. The Group receives the full support of the leading Breed Societies and this fact should be sufficient evidence to disperse any doubt which may exist in the minds of would-be members. A further appeal is therefore made to members to do everything possible to increase the Group's membership, wherein lies its strength."

### EXPORTS

For the greater part, the year under review has been one of trial for breeders and exporters of livestock with the levying of restrictions by some countries at one time or another on the importation of stock from Great Britain, which has been brought about by sudden and widespread outbreaks of foot-and-mouth disease in Eastern and South-Eastern England. Owing to foot-and-mouth restrictions, many animals selected for export are tied down in different parts of England, unable to proceed to ports of shipment. "In spite of these handicaps, however, exporters have risen to the occasion and they have every reason to compliment themselves in having made a bold bid to overcome the situation and extend the trade still further in their effort to assist the nation's economy." The increase in the numbers of animals shipped to Australia and New Zealand is encouraging, and that of 346 head to Canada through quarantine is worthy of note and only falls short by 10 of the number exported in the previous year. The decrease in the number exported direct to Canada, however, is alarming and has been brought about by the embargo placed by Canada on the direct shipment of stock from Scotland.

"Although trade has its high and low levels, the whole policy of quarantine accommodation is a long-term one and should not be regarded solely in the light of prevailing conditions. Sufficient quarantine accommodation should always be available to cope with

crises that may arise at any time, and nothing should stand in the way of our trying to keep the trade flowing smoothly. Its expansion, particularly to the West, is being severely handicapped because prospective purchasers will not buy if they cannot be assured of receiving their animals in time for their breeding season. Everything possible should be done to eliminate the existing bottlenecks."

### Health of Stock

"To enhance the reputation of our trade, it is felt necessary once again to emphasise the need to send abroad clean, healthy stock. In May last attention was again drawn to the fact that the Canadian authorities had had reason to complain that some animals had been landed infected with mange.

"Mange is a notifiable disease in Canada and this, in itself, should be sufficient warning to exporters. The Veterinary Director General of Canada has indicated that, apart from precautions to be taken to guard against the possible entry of foot-and-mouth infection, it is also necessary to guard against mange, and it is mainly for this reason that the Canadian authorities prefer animals to pass through quarantine where they can be properly dressed. Exporters must face up to the position and be prepared to accept the discontinuance of direct export from Scotland if, in the future, Canada should so decide.

"This is a problem which must be solved by breeders themselves if, when the trade with Canada reopens, they do not wish unnecessary restrictions to be placed upon them. Eradication of mange from the herd should be the breeder's aim, at the same time devoting special attention to stock selected for export.

"Should there be any reason for it, but it is hoped the occasion will not arise, the Group's Committees are always prepared, on the one hand, to investigate any complaint received by the Ministry from overseas countries regarding the health and care of animals in transit, but, in fairness to all concerned, it is felt that complaints should be specific and accompanied by full details. On the other hand, complaints from breeders and exporters will also receive every consideration. Indeed, the Committee has, during the year, investigated three major complaints made by exporters in regard to the condition of stock on arrival abroad."

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## APPRECIATION OF THE ROYAL COLLEGE

Certain public bodies which are well known overseas receive every week somewhat strange correspondence. The following letters from Africa and India, respectively, give an indication of what comes to hand at Red Lion Square.

My dear friends,

I am with much pleasure to write you these letter to say that I want to be a friend with you. But I want something from you. Try to send me your catalogue.

I need it very much. Try to send it to me intime. I have nothing to say again. If you send me my catalogue I will send you more things such as monkey's skin.

I am your loving friend.

. . . . . .

My dear father,

Kindly go through this letter entirely.

Since infancy I am a Bengali ORPHAN; so I have been struggling, specially from partition of our land Bengal on the day of departure of the Britishers resulting in creation of Pakistan for muslims only with BENGAL'S biggest slice (as East-Bengal).

So, I beg most humbly now to solicit you to be my "GOD-FATHER." My heartless neighbours give me no protection and shelter; although I am the direct grandson of a judje of India; still I am too poor to move out please.

Finding no other way of livelihood I have, to support my younger sister and brother (a celestial burden on me), taken now the profession of a veterinary surgeon. So, I wish to learn veterinary-matters shortly and in coincised forms to the extent of attracting the owners of ailing animals in vicinity. . . . I wish to study the veterinary surgery in its clinical and operative forms in a nut-sell containing only important facts please. . . .

Will you kindly select those hand-books stated above for me. They will be helpful to me in their coincised forms; because I have to earn by coaching the primary students immediately to meet this emergent oxygen-stage of my domestic economic diseases; moreover I have decided to take a short three months' veterinary compoundary course where I have to use them.

Having them selected by you kindly, will you please send them together to me per "VALUE PAYABLE" post under two pounds worth. . . . Kindly collect such books, if possible, as the donation, or the second-hand sale from your ex-students about to leave England who may not need them now. Otherwise kindly send new books only. In India Veterinary books are not written and so not easily available. It does not pay so much to authors.

In this badly competitive world, and with a celestial burden stated above, I found no light. The whisper of beacon of "DEATH" had been enchanting me, when informations of the English's and American's helps to the backward countries in the news paper saved me; and an angelic light flashed in my reveries where stood you and this veterinary profession. Peoples of America prattle much, whom we do not so much believe. The English are yet the kindest peoples in this world, who are the only practical nation. This is the history to write you this letter.

Quite unlike the simple Britishers, the Asians, always muddling things in cliques in favour of their own relatives, kith & kins, are sometimes the high commands who become umpires to distribute foreign donations; that is why Asians go behind the English and other advanced countries. I can not travel through so long a serpentine lane of cliques of the high-commands who fill the top level in a country badly infested with the "Caste-systems." Kindly pardon me for encrouching on your so valuable time. With thousands of thanks and best wishes,

Yours Affectionately.

* * * * *

## Tuberculosis (Attested Herds) Scheme, 1950

### Statement Showing Position in each County as at March 31st, 1952

In a memorandum relating to the following figures, the Ministry of Agriculture states: "In compiling the quarterly statement of the number of cattle in attested herds it is impracticable to take account of short-term fluctuations in the size of individual herds. A special count based upon the latest available information has, however, been made for the purpose of the statement showing the position at March 31st, 1952.

"The number of attested cattle in Great Britain on that date (3,262,505) includes a net increase of 125,000 cattle in individual herds since the end of March, 1951. During the first quarter of 1952, 5,505 herds containing about 160,000 cattle were added to the Register of Attested Herds."

| County | Total Cattle as at 4.6.51 | Number of Attested Herds as at 31.3.52 | Number of Cattle in Attested Herds as at 31.3.52 | Percentage of Attested Cattle to Total Cattle |
|---|---|---|---|---|
| Bedford | 48,984 | 183 | 11,430 | 23·3 |
| Berkshire | 92,331 | 761 | 49,060 | 53·1 |
| Buckingham | 121,185 | 642 | 36,770 | 30·3 |
| Cambridge | 34,108 | 171 | 10,730 | 31·4 |
| Isle of Ely | 23,332 | 33 | 1,930 | 8·3 |
| Chester | 251,247 | 1,275 | 66,270 | 26·4 |
| Cornwall | 275,418 | 1,352 | 46,530 | 16·9 |
| Isles of Scilly | 516 | 89 | 516 | 100·0 |
| Cumberland | 226,769 | 2,929 | 137,670 | 60·7 |
| Derby | 191,445 | 694 | 35,700 | 18·6 |
| Devon | 411,624 | 2,114 | 84,060 | 20·4 |
| Dorset | 159,110 | 1,203 | 71,780 | 45·1 |
| Durham | 119,258 | 1,030 | 37,120 | 31·1 |
| Essex | 131,656 | 872 | 50,240 | 38·2 |
| Gloucester | 203,382 | 1,201 | 66,840 | 32·9 |
| Hampshire | 156,926 | 1,318 | 75,150 | 47·8 |
| Isle of Wight | 21,888 | 243 | 10,120 | 46·3 |
| Hereford | 139,533 | 856 | 35,750 | 25·6 |
| Hertford | 64,182 | 460 | 29,080 | 45·3 |
| Huntingdon | 31,605 | 56 | 4,040 | 12·8 |
| Kent | 127,175 | 815 | 41,750 | 32·8 |
| Lancaster | 281,010 | 1,921 | 78,440 | 27·9 |
| Leicester | 174,334 | 441 | 25,380 | 14·5 |
| Lincoln (Holland) | 30,853 | 20 | 590 | 1·9 |
| Lincoln (Kesteven) | 75,212 | 167 | 8,570 | 11·4 |
| Lincoln (Lindsey) | 173,869 | 298 | 16,010 | 9·2 |
| London | — | — | — | — |
| Middlesex | 8,210 | 54 | 2,820 | 34·4 |
| Norfolk | 206,585 | 692 | 53,680 | 26·0 |
| Northampton | 162,475 | 313 | 21,810 | 12·8 |
| Soke of Peterborough | 7,363 | | | |
| Northumberland | 202,748 | 629 | 36,830 | 18·2 |
| Nottingham | 116,515 | 342 | 17,470 | 15·0 |
| Oxford | 113,873 | 798 | 47,140 | 41·4 |
| Rutland | 21,485 | 20 | 840 | 3·9 |
| Salop | 280,257 | 1,208 | 67,290 | 24·0 |
| Somerset | 329,401 | 2,305 | 117,810 | 35·8 |
| Stafford | 240,728 | 720 | 36,250 | 15·1 |
| Suffolk, East | 86,629 | 457 | 23,550 | 27·2 |
| Suffolk, West | 43,338 | 256 | 16,950 | 39·1 |
| Surrey | 54,412 | 605 | 27,770 | 51·0 |
| Sussex, East | 110,983 | 774 | 37,160 | 33·5 |
| Sussex, West | 79,150 | 644 | 37,650 | 47·6 |
| Warwick | 156,792 | 575 | 33,490 | 21·3 |
| Westmorland | 97,030 | 1,849 | 76,920 | 79·2 |
| Wiltshire | 209,483 | 1,011 | 79,010 | 37·7 |
| Worcester | 105,750 | 370 | 20,140 | 19·0 |
| York, E. Riding | 143,974 | 195 | 9,470 | 6·6 |
| York, N. Riding | 256,784 | 1,711 | 60,800 | 23·7 |
| York, W. Riding | 350,578 | 2,348 | 88,210 | 25·2 |
| England | 6,951,495 | 39,020 | 1,944,586 | 28·0 |

| County | Total Cattle as at 4.6.51 | Number of Attested Herds as at 31.3.52 | Number of Cattle in Attested Herds as at 31.3.52 | Percentage of Attested Cattle to Total Cattle |
|---|---|---|---|---|
| Anglesey .. .. | 53,179 | 639 | 14,810 | 27·9 |
| Brecon .. .. .. | 47,390 | 746 | 20,750 | 43·8 |
| Caernarvon .. .. | 58,789 | 1,324 | 27,320 | 46·4 |
| Cardigan .. .. | 77,779 | 4,230 | 75,480 | 97·1 |
| Carmarthen .. .. | 138,207 | 5,955 | 117,370 | 85·0 |
| Denbigh .. .. | 100,169 | 1,171 | 35,270 | 35·2 |
| Flint .. .. .. | 61,370 | 348 | 14,080 | 22·9 |
| Glamorgan .. .. | 75,332 | 824 | 19,350 | 25·7 |
| Merioneth .. .. | 40,389 | 1,560 | 31,120 | 77·0 |
| Monmouth .. .. | 71,107 | 422 | 16,680 | 23·5 |
| Montgomery .. .. | 96,991 | 1,844 | 49,250 | 50·8 |
| Pembroke .. .. | 103,234 | 2,752 | 65,310 | 63·3 |
| Radnor .. .. | 37,212 | 296 | 8,340 | 22·5 |
| WALES .. .. | 961,128 | 22,111 | 495,130 | 51·5 |
| ENGLAND AND WALES | 7,912,623 | 61,131 | 2,439,716 | 30·8 |
| Aberdeen .. .. | 227,510 | 428 | 34,550 | 15·2 |
| Angus .. .. .. | 65,612 | 201 | 18,600 | 28·3 |
| Argyll .. .. .. | 62,947 | 1,255 | 35,830 | 56·9 |
| Ayr .. .. .. | 153,587 | 2,295 | 141,590 | 92·2 |
| Banff .. .. .. | 56,110 | 111 | 7,400 | 13·2 |
| Berwick .. .. .. | 34,902 | 122 | 8,140 | 23·3 |
| Bute : | | | | |
| Attested Area .. | 6,036 | 235 | 6,036 | 100·0 |
| Non-Attested Area .. | 5,093 | 93 | 4,090 | 80·2 |
| Caithness .. .. | 28,441 | 204 | 5,490 | 19·3 |
| Clackmannan .. .. | 4,523 | 43 | 2,830 | 62·6 |
| Dumfries .. .. | 105,935 | 1,833 | 92,000 | 86·8 |
| Dunbarton .. .. | 17,440 | 298 | 15,020 | 86·1 |
| East Lothian .. .. | 16,435 | 74 | 5,750 | 34·9 |
| Fife .. .. .. | 64,362 | 526 | 37,420 | 58·1 |
| Inverness .. .. | 52,918 | 524 | 11,320 | 21·4 |
| Kincardine .. .. | 40,169 | 94 | 7,530 | 18·7 |
| Kinross .. .. .. | 9,753 | 67 | 4,760 | 48·8 |
| Kirkcudbright .. .. | 75,789 | 1,078 | 67,130 | 88·6 |
| Lanark .. .. .. | 94,703 | 1,553 | 81,020 | 85·6 |
| Midlothian .. .. | 24,535 | 282 | 14,120 | 57·5 |
| Moray .. .. .. | 30,581 | 95 | 7,660 | 25·0 |
| Nairn .. .. .. | 8,989 | 44 | 2,480 | 27·6 |
| Orkney .. .. .. | 49,597 | 516 | 11,990 | 24·2 |
| Peebles .. .. .. | 11,676 | 245 | 9,020 | 77·2 |
| Perth .. .. .. | 91,725 | 479 | 28,400 | 31·0 |
| Renfrew .. .. .. | 30,173 | 528 | 26,450 | 87·6 |
| Ross-shire .. .. | 39,929 | 896 | 9,850 | 24·7 |
| Roxburgh .. .. | 35,669 | 178 | 9,080 | 25·5 |
| Selkirk .. .. .. | 6,141 | 96 | 2,640 | 43·0 |
| Stirling .. .. .. | 41,213 | 572 | 26,590 | 64·5 |
| Sutherland .. .. | 9,851 | 594 | 4,430 | 45·2 |
| West Lothian .. .. | 15,688 | 210 | 10,090 | 64·3 |
| Wigtown .. .. | 74,642 | 833 | 66,010 | 88·4 |
| Zetland .. .. .. | 7,453 | 1,797 | 7,453 | 100·0 |
| SCOTLAND .. .. | 1,600,127 | 18,399 | 822,789 | 51·4 |
| GREAT BRITAIN .. | 9,512,750 | 79,530 | 3,262,505 | 34·3 |

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## GRANTS FOR STUDY IN THE UNITED STATES, 1953-54

The American Embassy, the English-Speaking Union, and the United States Educational Commission in the United Kingdom announce a programme of grants to assist British graduates to attend universities in the United States of America. The grants will be tenable for the academic year 1953-54.

### TYPES OF ASSISTANCE AVAILABLE

(1) *United States Government Grants.*—A number of grants in dollars will be available, under the terms of the Smith-Mundt Act, Public Law 402 of the 80th Congress of the United States. Each grant will include tuition fees for one academic year and a maintenance allowance sufficient for full living expenses. No living allowances are provided for dependants of grantees.

(2) *Private Grant Assistance.* The Institute of International Education each year assists overseas students to obtain fellowships awarded by American universities.

Fellowships from American universities are, however, not always sufficient to cover both fees and full living expenses. Applicants will, therefore, also be considered for a grant to provide dollar assistance to supplement a university fellowship or scholarship.

Successful candidates will receive assistance from either United States Government or private funds. A single application will admit applicants to candidacy for an award from either source.

Candidates who receive assistance in either category may receive a travel grant to cover expenses of travel to and from the United Kingdom and their destination in the United States. The travel grant will be administered by the United States Educational Commission in the United Kingdom, under the terms of the Fulbright Act, Public Law 584 of the 79th Congress of the United States. No travel expenses will be provided for dependants of grantees.

### CONDITIONS OF ELIGIBILITY

Applicants must be citizens of the United Kingdom or the Colonies, and under 35 years of age. They must be in good health and must have a *bona fide* academic purpose and be prepared to spend one academic year in graduate study at an American university. A Bachelor's degree or its equivalent must be held.

Application forms may be obtained from Mrs. D. R. Dalton, B.A., Universities Department, The English-Speaking Union, 37, Charles Street, Berkeley Square, London, W.1, after August 1st, 1952. All persons requesting application forms should include with their request a short statement containing the following information: name and address (block capitals), field of study, degree (class and university), present position. All applications must be filed with Mrs. D. R. Dalton, Universities Department, The English-Speaking Union, on or before November 1st, 1952.

Citizens of the Commonwealth countries should apply to the American Embassy in their own country for information on United States Government grants and Institute of International Education assistance.

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## PEDIGREE REGISTRATION CERTIFICATES TO REPLACE HERD BOOK ENTRIES

"A revolutionary change, worth the study of every member of a cattle breed organisation, is contemplated by the Ayrshire Herd Book Society," states the *Farmer and Stock-breeder* in its issue of May 20th, and continues: "The proposal is to replace the annual Herd Book with a system of pedigree registration certificates. Under the new scheme the breeder will receive within a few days of sending in details of his new calf, a certificate showing the parents, grand-parents and great-grand-parents with the production performance of each—all the milk yields of females and the average yields of a bull's every daughter. A breeder will receive automatically and without charge only details of the animals registered by himself. If, however, he wants particulars of other animals he will get them on payment.

"This marriage of pedigree and performance will widely commend the new idea, which will also abolish the present time-lag between an animal being notified to the breed society and its being allotted a number. It is claimed also that a reduction of expenditure will follow.

"On the debit side is the fact that the breeder is without that picture of the breed as a whole which the Herd Book provides. In the case of the elite of the pedigree cattle world, the bull breeders, this omission is important and will presumably have to be met by a specially subscribed issue of the Herd Book. It is probably true, however, that the majority of Herd Books now automatically issued by most large societies are seldom used and will not be missed.

"Systems similar to that now introduced have been in use in America for some time, but the Ayrshire one has features all its own. The originator, Mr. Dudley Beck, is an Englishman—and the fact that he has convinced so many hard-headed Scots in the breed hierarchy is recommendation enough that something worth watching is afoot."

## CORRESPONDENCE

*The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.*

### THE SUPPLEMENTARY VETERINARY REGISTER

Sir,—Mr. Waller's letter in last week's issue of *The Veterinary Record* was published inadvertently and is not only misleading, but a mis-statement of fact.

It is true that Mr. Waller has approached the Association with regard to the *proposed* formation of a "Veterinary Practitioners' Division" of the B.V.A., but I must point out that the matter has not yet been discussed by the Council of the Association. As Mr. Waller was informed early this month, the proposal will be placed on the agenda for the next meeting. It is therefore incorrect to imply that such a Division is already in being.—Yours faithfully, F. KNIGHT, *General Secretary*, British Veterinary Association, 36, Gordon Square, London, W.C.1. *May 23rd*, 1952.

Sir,—In your issue of March 29th you described a correspondent, who is on the Supplementary Veterinary Register, as "Registered Veterinary Practitioner." This is quite incorrect and meaningless, as there is no register of veterinary practitioners. Therefore there is no such person as a "Registered Veterinary Practitioner."

The Royal College of Veterinary Surgeons now maintains only two statutory registers. The first is the Register of Veterinary Surgeons, and persons thereon are entitled to the exclusive use of the title "Veterinary Surgeon," designed to indicate to the public that the holder is qualified. But a veterinary surgeon is entitled to use also a further title, "Veterinary Practitioner," which can also be used by persons on the Supplementary Veterinary Register.

The title "Veterinary Practitioner" is designed to indicate to the public that the person using it, whether qualified (Register of Veterinary Surgeons) or unqualified (Supplementary Veterinary Register), is allowed by law to practise veterinary surgery. Therefore the title "Veterinary Practitioner" does not refer only to persons on the Supplementary Veterinary Register nor is its use exclusive to them.

It follows, therefore, that the use of the title "Veterinary Practitioner" by Captain Hughes in his letter published by you in your issue of May 17th, makes his letter nonsensical when he says:—

"Surely it is time that those veterinary practitioners who are members of the B.V.A. held a get-together meeting to help themselves in most urgent matters relating to their calling."

His sentence, read correctly, calls on *all* members of the B.V.A. whether veterinary surgeon or supplementary veterinary register, to hold a meeting: that is, the entire Association. In fact his intention, from the context, was quite different, being to have a meeting of supplementary veterinary register members of the B.V.A. only.

Mr. Waller's letter to you, published on May 24th, also appears nonsensical by the incorrect use of the title "Veterinary Practitioner." Obviously, from the context his intention was to create a Division of the B.V.A. limited to persons on the Supplementary Veterinary Register. But the name of his suggested Division—Veterinary Practitioners' Division—would, if read correctly, indicate it to be composed of veterinary surgeons and persons on the Supplementary Veterinary Register; therefore a duplication of the B.V.A. itself. The only way that his intention can be correctly attained is by calling his proposed Division "The Supplementary Veterinary Register Division" of the B.V.A., provided that the B.V.A. is agreeable both to its creation and its name.

Lastly, I would point out that the heading under which the above-mentioned correspondence has been published in your journal, namely, "Veterinary Practitioners," is equally misleading and incorrect if your intention was to indicate that the correspondence referred to persons on the Supplementary Veterinary Register only.—Yours faithfully, W. G. R. Oates, *Registrar*. Veterinary Surgeons Acts 1881-1948. Royal College of Veterinary Surgeons, 9 and 10, Red Lion Square, London, W.C.1. *May 23rd*, 1952.

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## ANAVENOL IN LARGE ANIMALS

Sir,—The use of anavenol as a general anaesthetic in large animals has been reported by Berger, who gave individual case records. More recently there has been correspondence between Parry, the chief exponent of this anaesthetic, and Longley and Gold, who are opposed to its use. The strongly worded attacks by Longley and Gold were well mounted and their charge that this drug is a curarising agent and not an anaesthetic may be difficult to disprove. But I think that their evidence does not appear to have the cast-iron quality that one would have expected to match the vehemence of their attack. These personal views of mine may not carry the weight of those aired by the well-known members previously engaged in this corresoondence, yet the successful use of anavenol under the varying conditions of practice warrants some support for this drug.

Twenty-eight cases are probably sufficient for the operator to gauge a fair opinion of the value of anavenol as an anaesthetic, although it is realised that this total may not cover every eventuality that may occur.

In the early trials complete anaesthesia was not obtained, most likely due to this unfamiliar drug being used in a tentative manner, resulting in faulty administration and insufficient dosage. However, these animals became recumbent and surgery was performed without restraint. In later cases injection of the anaesthetic was continued after recumbency until the animal became insensible.

With one exception all of the later cases were rendered recumbent by anavenol and the intended surgery was carried out without the use of restraint and under good general anaesthesia. For convenience the limbs were moved when required by ropes, but in no sense did this constitute restraint.

Unsatisfactory cases consisted of:—

1. A mare in which some anavenol was injected subcutaneously in error. This was corrected and the animal put down with further administration. A swelling at the site of faulty injection dispersed within a week. There was no slough.

2. A rejected Angus bull which was a difficult subject for intravenous technique. The ensuing rodeo made continued administration of anavenol impossible. This case was the exception quoted above.

The serious heart syndromes mentioned in previous correspondence were not in evidence. By auscultation the only detectable change was an increased heart rate, but any adverse effect the drug may have had seemed to be well within the reserve capabilities of this organ.

It must be pointed out that none of these animals was employed in an athletic rôle comparable to that of a thoroughbred horse, so that it is impossible to say whether or not damage to the myocardium as a result of anavenol may appear only under strain. But it could be argued, meanwhile, that the heart of a fit blood horse may be able to deal even more efficiently with any general anaesthetic than that of a farm animal.

The properties of this drug make it, in my view, a most useful short duration anaesthetic in large animals, and accord with the makers' observations.

It is possible that the number of potential users of this drug has been reduced by the adverse correspondence, but as Sam Goldwyn is reported to have said, "there is no such thing as bad publicity." Yours faithfully, A. K. Kirkwood, 14 and 16, Queen's Road, Reading. *May 20th*, 1952.

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## MYOCRISIN THERAPY IN ARTHRITIS

Sir,—With reference to the recent article on Myocrisin therapy by Hogg and Holroyd, it may be of interest to record that I have recently encountered a dog showing apparent toxic effects following the administration of Myocrisin. The animal was a three-year-old Cocker spaniel male, in good bodily condition, which was suffering from a post-traumatic arthritis in the shoulder joint. The test dose of Myocrisin produced no untoward effects, but two subsequent doses of 0.02 gramme gave rise to acute pain and swelling in the affected joint within 24 hours of administration. This toxic response was slight following the first 0.02 gramme dose and was disregarded, but was of such severity after the second dose that Myocrisin therapy was discontinued.

I have also encountered a case in which Myocrisin therapy gave rise to a profuse diarrhoea for two or three days following the injections.

Despite these isolated cases of apparent toxic reactions I should like to endorse the opinion of Hogg and Holroyd as to the usefulness of this product in selected cases of arthritis in the dog.—Yours faithfully, G. T. Wilkinson, Orford Place, Norwich. *May 21st*, 1952.

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## PHOSPHORUS POISONING IN THE CAT

Sir,—A cat, the property of a nearby works, was found in a very distressed condition after being lost for three days. Manipulation for examination was almost impossible, owing to violent spasms of pain. Lead poisoning was suspected, from the blue mouth and gums together with a frothy foam around the mouth.

At the surgery the cat was chloroformed, and given a stomach wash, passing a tube into the stomach to give a solution of sod. bicarb. with a "two-way syringe." At the same time 10 c.c. of 20 per cent. calcium boro-gluconate was given intramuscularly.

The colon was treated in much the same manner as the stomach. The colon was felt to be dry and a small stool devoid of any moisture came away. This contained sufficient phosphorus to glow in the dark. My own opinion is that the cat had devoured a rat that had itself eaten poisoned food. The morning after, the cat was its old self again.—Yours faithfully, Ivor Hughes, Coleshill, Warwicks. *May 19th*, 1952.

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## A FAREWELL MESSAGE OF APPRECIATION

Dear Sir,—As I shall not have time to see or even to write to a great number of my friends in this country before taking a position with the F.A.O. in Ethiopia on June 1st, I should like to express in your columns my feelings of regret at my apparent lack of courtesy, but events have moved too fast.

Ever since coming to the United Kingdom in January, 1948, I have been received with the greatest kindness and, moreover, this has continued over the four years of pleasant contacts. The conferring of the M.R.C.V.S. on the Commonwealth and Colonial List of the Royal College was an honour which I appreciated, as was my appointment to the Council of the British Veterinary Association.

I have found that everywhere I have travelled and met my veterinary colleagues in this country I have been given all the help and consideration I needed and that each and every one has gone out of his way to ensure that my stay would be a happy one. I shall, of course, have a successor in my office, but who it will be is as yet not decided, but I know that he, too, will be given a welcome.

Meantime I should like to retain the privilege of membership of the B.V.A. which plays so important a part in the life of the veterinary profession in this country. One will miss the annual meetings which have always been so pleasant and which keep one well informed of the trends of thought in the United Kingdom.

Finally, I would wish the profession every success in the future, bearing in mind the need for wide vision in matters concerning animal and human health.

With my best wishes,

Yours sincerely,

C. S. M. Hopkirk, D.V.SC.

Veterinary Adviser, New Zealand Government Offices, 415, Strand, London, W.C.2. *May 23rd*, 1952.